

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
CPM PROGRESS SCHEDULE FOR CATEGORY IV PROJECTS

March 1, 2011

Section 103.06(e) Progress Schedule of the Specifications is deleted and replaced by this provision.

Section 108.03 Progress Schedule of the Specifications is deleted and replaced by this provision.

For definitions of scheduling terms not defined herein, and guidelines on preparing and maintaining the Progress Schedule, refer to the *VDOT Post-Award Scheduling Guide*.

I. GENERAL REQUIREMENTS

This work shall consist of generating and maintaining a project Progress Schedule to aid the Contractor and the Department in planning and executing the Work. The Progress Schedule shall be used by the Contractor, the Department, and all involved parties to plan and schedule all work required to complete the project. The Progress Schedule shall also be used by the Department to monitor progress of the individual activities required to complete the project; as well as to assess the overall progress of the Work and to evaluate the effects of time-related changes on the project. The Progress Schedule shall consist of a cost loaded Critical Path Method (CPM) Progress Schedule, Progress Schedule Narrative, and Progress Earnings Schedule submitted in accordance with the requirements of this provision.

The Contractor shall prepare and submit, for the Engineer's review and acceptance, a Progress Schedule to communicate the Contractor's intentions and proposed plan to accomplish the Work in accordance with the requirements of the Contract. The Progress Schedule shall depict the sequence in which the Contractor proposes to perform the Work and the dates on which the Contractor contemplates starting and completing all schedule activities required to complete the project. The Contractor shall maintain the Progress Schedule, at a minimum, monthly to ensure that it continues to represent the current status of the project and the Contractor's current work plan to complete the project.

The Contractor shall attend a Scheduling Conference with the Engineer no later than seven (7) calendar days prior to beginning the Work, with the exception of project start-up activities such as submittals, mobilization, surveying, construction access and signage, erosion and sedimentation controls, etc., as approved by the Engineer. The Scheduling Conference will be held to discuss the Contractor's overall plan to complete the Work and the detail work plan for the first ninety (90) calendar days of Work. The Scheduling Conference may be held in conjunction with the Pre-Construction Conference or at a separate meeting as mutually agreed to by the Contractor and the Engineer. The Contractor shall discuss his/her overall plan of operations concerning the Maintenance of Traffic (MOT)/Sequence of Construction or any proposed deviations from the phasing, staging, or sequence of construction as indicated on the Contract plans or as approved by the Engineer. During the Scheduling Conference key issues and project specific requirements necessary for the development of the Baseline Progress Schedule shall also be discussed. Such key issues shall include as applicable, but are not limited to key submittals, permits, construction access, right of way, environmental, utility, traffic or local events identified in the Contract Documents that may impact traffic; as well as other limitations to the Work or any known constraints or foreseeable issues that may impact the schedule. Such project specific requirements shall include as applicable, but are not limited to scheduling, phasing, sequencing, milestone(s), work to be performed by the Department or other previously identified involved parties; or any known or likely constructability issues relative to the Contract plans and specifications.

II. OVERVIEW OF THE VARIOUS REQUIRED PROGRESS SCHEDULE SUBMISSIONS

A. Preliminary Progress Schedule – At least two (2) business days prior to the Scheduling Conference, or as approved by the Engineer, the Contractor shall submit to the Engineer for review and acceptance a Preliminary Progress Schedule. At the Contractor's discretion, a complete detailed Baseline Progress Schedule for the entire project may be submitted in lieu of the Preliminary Progress Schedule. The Preliminary Progress Schedule submission shall consist of the following:

1. Preliminary Progress Schedule: The Preliminary Progress Schedule shall depict, at a detailed level, the Contractor's proposed sequence and start/finish dates for all activities scheduled for the first ninety (90) calendar days of work. It shall also include, as applicable, any milestones or work to be performed by sub-contractors, the Department, or third parties during the first ninety (90) calendar days of work. The Preliminary Progress Schedule shall also depict at a summary level the proposed overall sequence and timing of the remaining Work. The Preliminary Progress Schedule shall be prepared in accordance with Section IV (A), with the exception of cost-loading.
2. Preliminary Progress Schedule Narrative: The Preliminary Progress Schedule Narrative shall describe the Contractor's detailed work plan for the first ninety (90) calendar days of work. The Preliminary Progress Schedule Narrative shall be prepared in accordance with Section IV (B).

Until the Baseline Progress Schedule is accepted by the Engineer, the Contractor shall submit an update of the Preliminary Progress Schedule monthly, within five (5) working days after the current data date or as approved by the Engineer. The updated Preliminary Progress Schedule shall show the actual progress of work completed to date and the current detailed schedule for accomplishing the work planned for the following ninety (90) calendar days of Work, as of the data date. It shall also show the summary level activities required to complete the remainder of the Work.

B. Baseline Progress Schedule – Within forty-five (45) calendar days after the Notice to Proceed (NTP) date or as approved by the Engineer, the Contractor shall submit in its entirety, his/her Baseline Progress Schedule, to the Engineer for review and acceptance. The Baseline Progress Schedule submittal shall consist of the following:

1. Baseline Progress Schedule: The Baseline Progress Schedule shall represent the Contractor's initial detailed plan to accomplish the entire scope of Work in accordance with the Contract. The Baseline Progress Schedule shall be prepared based on the Critical Path Method (CPM) and shall depict in a time-scaled bar-chart plot, the sequence in which the Contractor proposes to perform the Work, the project critical path, and the dates on which the Contractor contemplates starting and completing the individual schedule activities required to complete the project. The Baseline Progress Schedule shall also depict the current status of the project and the Contractor's current plan to complete the remaining work, as of the Baseline Progress Schedule submittal date.

The Baseline Progress Schedule shall reflect a practicable work plan and logical progress of the Work as indicated in the Contract Documents or as approved by the Engineer. When preparing the schedule, the Contractor shall consider as applicable, all known or specified constraints or restrictions such as: holidays, seasonal, normal weather, traffic or previously identified local events that may impact traffic, utility, railroad, right-of-way, environmental, permits, or other limitations to the Work that will impact the schedule. The Baseline Progress Schedule shall be prepared in accordance with Section IV (A).

2. Baseline Progress Schedule Narrative: The Baseline Progress Schedule Narrative shall describe the Contractor's proposed overall work plan to complete the entire project as

reflected on the Baseline Progress Schedule. The Baseline Progress Schedule Narrative shall be prepared in accordance with Section IV (B).

3. Baseline Progress Earnings Schedule: The Baseline Progress Earnings Schedule shall indicate the Contractor's anticipated cumulative progress each month as of the Contractor's progress estimate date as defined in Section 109.08(a) of the Specifications. The anticipated cumulative progress shall be expressed as "Percent Complete" based on the anticipated total earnings to date relative to the Total Contract Value. The Baseline Progress Earnings Schedule shall be based on the Baseline Progress Schedule and shall be prepared on the VDOT Form C-13CPM in accordance with Section IV (C).

The Baseline Progress Schedule will be reviewed by the Engineer for acceptance in accordance with Section VII. Upon acceptance by the Engineer, the Baseline Progress Schedule shall replace the Preliminary Progress Schedule. The accepted Baseline Progress Schedule shall henceforth become the project Schedule of Record (SOR). The SOR shall be defined as the currently accepted Baseline Progress Schedule. Until a subsequent Revised Progress Schedule is submitted and accepted, the accepted Baseline Progress Schedule shall remain the SOR against which all subsequent Progress Schedule Updates and progress will be compared. The SOR shall be used by the Engineer to assess the Contractor's schedule-based performance on the project.

- C. Progress Schedule Update** – The Contractor shall on a monthly basis submit for the Engineer's review and acceptance the Contractor's Progress Schedule Update within five (5) business days after the Contractor's progress estimate date or as approved by the Engineer. The Progress Schedule Update shall consist of the following:

1. Progress Schedule Update: The Progress Schedule Update shall depict the current status of the Work and the Contractor's current plan to complete the remaining work as of the data date. The Progress Schedule Update shall be prepared in accordance with Section IV (A).
2. Progress Schedule Update Narrative: The Progress Schedule Update Narrative shall describe the work performed since the previous update and the Contractor's current plan for accomplishing the remaining work. It shall also describe any progress deficiencies, schedule slippages, or time-related issues encountered; as well as any actions taken or proposed to avoid or mitigate the effects of the progress deficiencies, schedule slippages, or time-related issues. The Progress Schedule Update Narrative shall be prepared in accordance with Section IV (B).
3. Progress Earnings Schedule Update: The Progress Earnings Schedule Update shall depict the current status of the project by percent complete based on the actual total earnings to date relative to the Total Contract Value. The Progress Earnings Schedule Update shall show the actual monthly and cumulative cost to date, as reflected on the Contractor's payment estimate; any variance in percent complete relative to the SOR; and the projected earnings for the remaining payment periods. The Progress Earnings Schedule Update shall be prepared on the VDOT Form C-13CPM in accordance with Section IV (C).

The Progress Schedule Update will be reviewed by the Engineer for acceptance in accordance with Section VII. Upon acceptance by the Engineer, the Progress Schedule Update shall replace any previous Progress Schedule Updates as the current update of the SOR; however, it shall not replace the SOR. The currently accepted Progress Schedule Update shall henceforth become the contemporaneous schedule with which to report the current status of the project, plan the remaining Work, and evaluate the effects of any time-related changes or delays on the remaining Work.

- D. Revised Progress Schedule** – When the current Progress Schedule or work plan deviates significantly from the SOR, the Contractor shall submit to the Engineer for review and acceptance a Revised Progress Schedule to represent the Contractor's revised plan to complete the

remaining work. Deviate significantly will be construed to mean deviations from the SOR resulting from schedule impacts or major changes in the Progress Schedule that alter the project critical path, Contract interim milestone(s), or project completion; or causes a major shift in the Progress Earnings Schedule. A Revised Progress Schedule will be required when:

1. The Engineer approves a Schedule Impact Analysis (SIA) for authorized or unanticipated changes in the Work or conditions that significantly impacts the Progress Schedule, as determined by the Engineer.
2. The Contractor proposes a different approach to his/her work plan that significantly impacts the Progress Schedule or the Engineer determines that the current Progress Schedule Update or Contractor's current work plan deviates significantly from the SOR. Such deviations may include, but are not limited to major changes in the Contractor's proposed phasing, general sequence, resource plan, means and methods, or durations. The Contractor may revise his/her Progress Schedule at any time, at his/her discretion; however, the Engineer will only consider accepting a Revised Progress Schedule submission for major changes that deviate significantly from the SOR.
3. The Engineer determines that progress of the Work is trending towards unsatisfactory, in accordance with Section VIII (C), and in the opinion of the Engineer, it is apparent that the progress deficiency will not result in an extension of the completion date of the project beyond the Contract time limit and a Recovery Plan is not required to correct the progress deficiency. In such cases, the Engineer will request a meeting with the Contractor to discuss the progress deficiency to determine the appropriate corrective action required.

The Revised Progress Schedule submission shall be based on the currently accepted Progress Schedule Update and shall be prepared and submitted in the form of a Baseline Progress Schedule as described in Section II (B). However, it shall reflect the current status of the project as of the submittal date, approved changes in the Work, and the proposed plan for completing the remaining work. The Revised Progress Schedule shall be submitted in lieu of a subsequent Progress Schedule Update unless directed otherwise by the Engineer. The Revised Progress Schedule will be reviewed by the Engineer for acceptance in accordance with Section VII. Upon acceptance by the Engineer, the Revised Progress Schedule shall henceforth replace the accepted Baseline Progress Schedule or any previously accepted Revised Progress Schedule as the SOR for the remainder of the project.

- E. Final As-Built Progress Schedule** – Within thirty (30) calendar days after final acceptance, the Contractor shall submit to the Engineer his/her Final As-built Progress Schedule. The Final As-built Progress Schedule shall show the actual start and finish dates for each activity in the schedule. The Contractor shall certify in writing that the Final As-built Progress Schedule accurately reflects the actual start and finish dates for all activities contained in the Progress Schedule. The Final As-built Progress Schedule shall be submitted in the form of a monthly Progress Schedule Update and shall represent the last Progress Schedule Update submission.

III. SCHEDULE IMPACT ANALYSIS (SIA) FOR CHANGES AND DELAYS

- A. Changes, Delays, and Schedule Impacts** – When changes in the Work that will impact the schedule are proposed or authorized by the Engineer, the Contractor shall submit for the Engineer's review and approval, a Schedule Impact Analysis (SIA) to determine the impact of the change. Also, when the Contractor believes he is entitled to a time extension and/or additional compensation for a time-related impact that is attributable to a cause beyond the control of and without the fault, negligence, or responsibility of the Contractor or those for whom the Contractor is responsible, the Contractor shall submit for the Engineer's review and approval, a SIA and all available supporting data to substantiate the request for modification of the Contract. The Contractor's request and SIA shall be submitted in accordance with the following:

1. Impacts Due to Directed or Authorized Changes: When the Engineer issues a written order or authorizes a change in the Work in writing, the Contractor shall submit in writing within seven (7) calendar days of the Engineer's written direction or as required by the Engineer, a request for modification of the Contract, if the Contractor believes that additional time and/or compensation is required to perform the Work. Such changes in the Work may include, but are not limited to directed or authorized changes in accordance with the applicable portions of Sections 104.02, 108.05, and 109.05 of the Specifications. The Contractor shall submit along with his/her request a *prospective* Schedule Impact Analysis (SIA) to substantiate the request for modification of the Contract in accordance with this provision and the applicable portions of Sections 104.02, 108.05, and 109.05 of the Specifications.
2. Impacts Due to Unanticipated Changes or Delays: When the Contractor discovers or encounters previously unknown or unanticipated changes in the Work or conditions, or a delay event that he believes will impact progress of the Work or completion of the project, the Contractor shall notify the Engineer in writing within two (2) working days of such discovery or encounter. Such changes in the Work or conditions or delay events may include, but are not limited to unusually severe weather, extraordinary or catastrophic weather events, errors or omissions in the Contract Documents; or differing site conditions or utility delays in accordance with the applicable portions of Sections 104.03 and 105.08 of the Specifications.

The Contractor shall then gather all available pertinent information and data necessary to determine how such change in the Work or condition will impact progress of the Work or completion of the project. The Contractor and the Department shall promptly meet to evaluate the scope and potential impact of such change or condition to allow the Engineer to make a timely decision on how to proceed, as well as to determine how the impact of such change or condition can be avoided or mitigated.

The Engineer may direct the Contractor to submit a SIA prior to proceeding with the work affected by such change, condition, or delay, in which case the Contractor shall submit in writing within seven (7) calendar days after receipt of the Engineer's direction, a request for modification of the Contract and a *prospective* SIA to substantiate the request for modification of the Contract.

Otherwise, the Contractor shall submit in writing a request for modification of the Contract and a *contemporaneous* SIA to substantiate the request for modification of the Contract. The request for modification of the Contract and SIA shall be submitted within fourteen (14) calendar days of completion of the changed work or work directly impacted by such condition, or the cessation date of the delay event, or as approved by the Engineer.

3. Unresolved Impacts: When the Contractor believes he is entitled to a time extension and/or additional compensation for an unresolved impact to the Work that is attributable to a cause beyond the control of and without the fault, negligence, or responsibility of the Contractor or those for whom the Contractor is responsible, the Contractor shall submit for the Engineer's review and approval, a request for modification of the Contract and a *retrospective* SIA to substantiate the request for modification of the Contract. Such impacts may involve, but are not limited to changes authorized by either Force Account Work or Unilateral Work Order, or other changes for which the scope of the change or magnitude of the impact could not be determined or mutually agreed to at the time the change was authorized or the delay event or changed condition was encountered.

The Contractor's notice of a change, a subsequent meeting with the Engineer, or submittal of a request for modification of the Contract as defined herein, shall not constitute a notice of intent to file a claim as required by Section 105.19. *No part of this provision is intended to alter, replace, or supersede Section 105.19 of the Specifications. The Contractor must adhere to Section 105.19 as well as this provision to preserve their rights to file a claim.*

B. Schedule Impact Analysis (SIA) – The SIA submission shall include a SIA schedule and a written SIA statement as well as supporting data and such information necessary for the Department to make an adequate and timely evaluation of any time-related request received from the Contractor for modification of the Contract. The SIA submission shall consist of the following:

1. A SIA schedule, as specified herein, which shall depict the schedule impact of the change in the Work or condition or delay event based on the currently accepted Progress Schedule Update, submitted prior to the earlier of the date the change in the Work was authorized or the changed condition or delay event was encountered. If the most recently submitted Progress Schedule Update is unacceptable, then the Engineer will evaluate the request based on the previously accepted Progress Schedule Update. In which case, the Contractor shall update the previously accepted Progress Schedule Update to show the actual progress of the Work to date as of the earlier of the date the change in the Work was authorized or the changed condition or delay event was encountered. The SIA schedule shall:
 - a) Be based on the “Time Impact Analysis (TIA)” or “Contemporaneous Schedule Analysis” method as determined by the Engineer, to determine the status of the currently accepted Progress Schedule Update before and after the change in the Work or condition or delay event.
 - b) Show a fragnet (fragmentary network of added or changed activities) representing the added work, changed work or condition, or delay event(s). The fragnet activities shall be logically linked to the affected activities to show the direct impact on the work.
 - c) Show the current status of the completed and on-going activities as of the date the change in the Work was authorized or the changed condition was encountered or the delay event started.
 - d) Depict the schedule impact by showing a comparison between the impacted Progress Schedule Update and the most recently accepted Progress Schedule Update with a data date closest to and prior to the earlier of the date the change in the Work was authorized or the changed condition or delay event was encountered.
 - e) Depict the overall impact on the project critical path, Contract interim milestone(s), other significant dates, and the Contract fixed completion date, as applicable.
2. A written SIA statement to:
 - a) Describe the type, cause, and scope of the added work, changed work or condition, or delay event.
 - b) Provide sequence and timing of events and/or actions by all involved parties relating to the change or delay.
 - c) Describe the particular operations affected as well as identify by Activity ID and Activity Name the activities that are directly impacted.
 - d) Describe the impact on the critical path, total float, Contract interim milestone(s), other significant dates, or the Contract fixed completion date, as applicable.
 - e) Include a comparative analysis report relative to the currently accepted Progress Schedule Update to identify all changes made to the impacted Progress Schedule.
 - f) Identify any actions taken and/or needed to avoid or mitigate the delay or the effects of the delay.

Approval or rejection of the SIA by Engineer shall be made within ten (10) business days after receipt of the SIA, unless subsequent meetings and negotiations are necessary, as determined by the Engineer. Upon approval by the Engineer, the Contractor shall incorporate the SIA into the Progress Schedule and shall submit the impacted Progress Schedule as a Progress Schedule Update or Revised Progress Schedule as directed by the Engineer. If appropriate, the approved SIA shall be used to substantiate any request for a time extension or time-related damages or additional compensations, in accordance with the applicable portions of Sections 104.02, 104.03, 105.08, 108.04, and 109.05 of the Specifications.

IV. DETAILED REQUIREMENTS FOR PROGRESS SCHEDULE SUBMISSIONS

A. Progress Schedule – The Progress Schedule shall conform to the following requirements:

1. Software Compatibility Requirements: The Contractor shall submit his/her Progress Schedule in the Primavera proprietary exchange format (XER) to ensure compatibility with the Department's scheduling software system. The Department's scheduling software system is the latest version of Primavera's Project Management software (currently P6 version 6.2). Compatible shall mean that the Contractor-provided electronic file versions of the schedule can be imported into the Department's scheduling software system with no modifications, preparation or adjustments. For projects that are included in a multi-contract mega-project, the Contractor shall prepare and maintain his/her Progress Schedule in the Department's scheduling software system. At the Contractor's request, secured access via the internet may be granted to allow the Contractor to develop and maintain his/her Progress Schedule in the Department's scheduling software system. The Progress Schedule shall be submitted in accordance with Section V.
2. Software Settings: If Primavera (P6) or equivalent scheduling software with similar features is used to prepare the Progress Schedule, the Contractor shall define the project attributes and schedule calculation options in accordance with the software settings detail requirements defined in the VDOT Post-award Scheduling Guide.
3. Work Breakdown Structure (WBS): The Baseline Progress Schedule shall be organized using a multi-level hierarchical Work Breakdown Structure (WBS). The Contractor shall define a project WBS to allow for a hierarchical organization and breakdown of the Work based on the Contractor's approach and in accordance with the phasing/sequence of construction and traffic control plans as specified in the Contract or as approved by the Engineer.
4. Activity Codes: The Contractor shall define and assign as appropriate, activity codes to allow for filtering, grouping, and sorting of activities by Responsibility, Phase, Stage, Feature of Work, Area, Location, Work Type, Crew, and Contract Modification activity codes to facilitate review and use of the Progress Schedule. If Primavera (P6) or equivalent scheduling software with similar features is used to prepare the Progress Schedule, the Contractor shall define activity codes using the project-specific activity codes option. Use of global activity codes shall not be allowed and shall be grounds for rejecting the Progress Schedule submission. Project-specific activity codes shall be defined and assigned in accordance with the detail requirements defined in the VDOT Post-award Scheduling Guide.
5. Calendars: The Contractor shall define and assign as appropriate, project-specific calendar to each activity to indicate when the activity can be performed. If Primavera (P6) or equivalent scheduling software with similar features is used to prepare the Progress Schedule, the Contractor shall define the project calendars using the project-specific option. The project calendars shall indicate, as applicable, the standard working hours per day, standard working days per week, and non-work days such as week-ends, holidays, weather days, local events, environmental, time-of-year restrictions, etc. Use of global calendars shall not be allowed and shall be grounds for rejecting the Progress Schedule submission. The project-specific

calendars shall be defined in accordance with the detail requirements defined in the VDOT Post-award Scheduling Guide.

6. Level of Detail: The Contractor shall develop the Progress Schedule to an appropriate level of detail that allows for the formation of a reasonable critical path. The Progress Schedule shall show as applicable, Contract milestones and other key milestones for significant project events. The Progress Schedule shall also show, as applicable, administrative, procurement, MOT, work to be performed by other involved parties, discrete work activities to indicate the type of operation and location of the work, and other necessary time-based tasks required for completion of the project. The Work shall be sub-divided as practical, to such a level that the activity durations for on-site work excluding, activities whose durations are specified elsewhere in the Contract, are twenty (20) workdays or less. Longer durations may be allowed, as approved by the Engineer, for activities that typically span long periods of time such as fabrication and delivery of materials, administrative, MOT, or other such level of effort activities.
7. Network Logic: The Progress Schedule network logic shall be based on the Precedence Diagram Method (PDM) and shall show the order and inter-dependence of the activities and the sequence in which the Contractor proposes to accomplish the Work. The Contractor shall apply the Critical Path Method (CPM) of network calculation to generate the Progress Schedule. The project critical path shall be based on the "Longest Path". The Progress Schedule network logic shall be developed in accordance with the detail requirements defined in the VDOT Post-award Scheduling Guide.
8. Schedule Constraints: All Contract milestone activities shall be constrained, as applicable, with a "Start On or After" (Early Start) date or "Finish On or Before" (Late Finish) date equal to the "Start No Earlier Than" or "Must Finish By" date specified in the Contract, except as specified below. The Contractor's use of schedule constraints with the exception of the specific requirements defined below is not allowed, unless approved by the Engineer. The use of schedule constraints such as "Start On" or "Finish On" for the purpose of manipulating float or the use of schedule constraints that violate network logic such "Mandatory Start" or "Mandatory Finish" will not be allowed. When a schedule constraint is used, other than the schedule constraints specified herein, the Contractor shall provide explanation for the use of such constraint in the Progress Schedule or Progress Schedule Narrative.
 - a) For Contracts that include an "Early Completion" incentive provision to finish earlier or no later than a Contract specified interim completion milestone date, the "Early Completion" incentive interim milestone activity shall be constrained with a "Finish On or Before" date equal to the Contractor's proposed early completion interim milestone date or the Contract specified "Early Completion" interim milestone date for the maximum early completion incentive allowed in the Contract, whichever is later.
 - b) For Contracts that include a "Must Finish By" disincentive provision for finishing later than a Contract specified interim completion milestone date, the disincentive interim milestone activity shall be constrained with a "Finish On or Before" date equal to the Contract specified "Must Finish By" interim completion milestone date.
9. Data Date: The data date is defined as the current status date of the Progress Schedule, which defines the start date for the scheduled remaining Work. All Progress Schedule submissions shall be calculated using an appropriate data date to indicate the status of the project at the time the Progress Schedule is submitted.
 - a) For the Preliminary, Baseline, or subsequent Revised Progress Schedule submission, the data date shall be no more than five (5) business days prior to the submittal date.

- b) For the monthly Progress Schedule Update submissions the data date shall be the Contractor's monthly progress estimate date as defined in Section 109.08(a) of the Specifications.

10. Total Float: This section is intended to apply only to considerations of Contract time extension requests relative to available total float. Considerations for other time-related impacts, if any, are covered in other Sections of the Specifications. Any request for a Contract time extension will be evaluated, in accordance with Section 108.04, based on the critical path and available total float. Total float is defined as the amount of time, typically expressed in days (number of workdays or calendar days depending on the assigned calendar), that an activity can be delayed without extending the completion date of a related Contract interim milestone or the project, as applicable. Except as specified herein, total float shall be calculated, as applicable, relative to a constrained Contract interim milestone date or the Contract fixed completion date specified in the Contract or a subsequent Work Order.

For Contracts that include a disincentive only provision for finishing later than a Contract specified "Must Finish By" interim milestone date, total float shall be calculated relative to the Contract specified "Must Finish By" date. For Contracts that include an early completion incentive/disincentive provision to finish earlier or no later than a Contract specified "Must Finish By" interim milestone date, total float shall be calculated relative to the later of either the Contractor's proposed early completion date or the Contract specified early completion date for the maximum early completion incentive allowed in the Contract. In which case, the Contractor shall declare in writing, at the time of submitting his/her Baseline Progress Schedule or as specified in the incentive/disincentive provision, his/her intended early completion date(s) for the applicable Contract interim milestone or Contract fixed completion, as reflected on the Baseline Progress Schedule.

With the exception of A+B based Contracts, any float available in the Progress Schedule, at any time, shall be considered project float and is not for the exclusive use or benefit of either the Department or the Contractor. It shall be understood by the Contractor and the Department that float is a shared commodity and either party has the right to full use of any available float. Until such time that all available float is depleted, the project float shall be used responsibly in the best interest of the project and in a manner that best serves the timely completion of the Work by either a specified Contract interim milestone or the Contract fixed completion date, as applicable.

For A+B based Contracts for which the Contractor bids the Contract time and/or Contract interim milestone(s), any float on a critical activity or activities on the critical path shall belong to the Contractor and any float on non-critical activities or activities not on the critical path shall belong to the project and shall be considered available project float for use by either the Department or the Contractor for the benefit of the project.

The Contractor shall not modify the Progress Schedule at any time for the purpose of manipulating float. Negative float conditions will not be allowed in the Preliminary, Baseline, or Revised Progress Schedule.

11. Cost Loading: The Contractor shall cost load each activity in the Progress Schedule that represents work that will be measured for payment. The Progress Schedule shall be reasonably cost loaded to allow for accurate determination of progress of the individual activities and the overall progress of the Work based on total actual cost (earnings). For the purposes of this provision, "cost" shall mean the proportion of the Contract bid item amount of the work that the activity represents. At the Contractor's discretion, a bid item may be assigned to multiple activities or multiple bid items may be assigned to an activity as appropriate. Supporting items of work such as MOT, flagging, E&S, etc., that are typically performed intermittently over long periods of time may be assigned to a summary "Level of

Effort” activity as appropriate. The Progress Schedule shall be cost loaded using the software “Material” resource type and in accordance with the following:

- a) “Material” resources shall be defined for each Contract line item as shown on the Contract Schedule of Items and assigned to the applicable activities. The Resource ID shall be unique and shall be based on the associated Contract Bid Item Number and prefixed by the Contract ID (e.g., C00012345B01.00100).
- b) Quantities and costs shall be assigned to applicable activities to allow for an accurate determination of progress of the activity based on total units (quantity) of work completed.
- c) Activities shall be cost-loaded to allow for summarization of the budgeted quantity and budgeted costs by Resource ID. The aggregate sum of the budgeted quantity and budgeted costs for all activities to which the resource is assigned shall equal the total Contract amount for the associated Contract Bid Item Number as shown in the Contract Schedule of Items.
- d) The aggregate sum of the budgeted costs for all cost loaded activities shall equal the Total Contract Value. Total Contract Value will be considered to mean the current Contract amount including the original Contract amount and any authorized adjustments for changes in the Work in accordance with, but are not limited to, the provisions of Sections 109.04 and 109.05 of the Specifications.
- e) Anticipated payments for Material on Hand in accordance with Section 109.09 of the Specifications or for other adjustments such as asphalt, fuel, retainage, incentives, disincentives, etc., will not be considered in the Progress Schedule, unless specifically directed otherwise by the Engineer.

12. Progress Schedule Update: The Progress Schedule Update shall reflect the actual status of the Work and the current plan to complete the remaining work as of the current data date. It shall show the actual start/finish dates for each completed activity and the actual start date, remaining duration, and progress (percent complete) of each on-going activity. The Progress Schedule Update shall allow for an accurate determination of progress of completed and on-going work based on total actual cost (earnings) to date; as well as an accurate projection of the anticipated monthly earnings for the remaining work based on remaining cost. The Progress Schedule Update shall be based on the most recently accepted Progress Schedule and shall be prepared in accordance with the detail requirements defined in the VDOT Post-award Scheduling Guide.

B. Progress Schedule Narrative – As specified in Section II of this provision, a Baseline Progress Schedule Narrative shall be submitted with the Baseline Progress Schedule submission and a Progress Schedule Update Narrative shall be submitted with the Progress Schedule Update submission. The Progress Schedule Narrative shall be prepared in accordance with the following:

1. Baseline Progress Schedule Narrative: The Baseline Progress Schedule Narrative shall include the following written information:
 - a) The Contractor’s overall plan describing:
 - i) The proposed overall sequence of construction, including where the work will begin and how the work will progress;
 - ii) The methodology, scheduling assumptions, and general procedures for completing each major feature of Work;
 - iii) A list of the major resources (number and type of crews and equipment) required to complete the project as scheduled. For early completion

schedules (projects with an early completion interim milestone provision or projects with scheduled completion dates earlier than the Contract specified date by thirty (30) calendar days or more), the Contractor shall also provide a written resource plan for the major operations to demonstrate the Contractor's ability and commitment to provide resources at the level required to complete the work within the timeframes shown in the Progress Schedule;

- iv) Anticipated daily production rates for each major operation.
 - b) A description of the project critical path.
 - c) A listing of the major milestone dates, including as applicable, Contract interim milestone(s), major traffic switches, start/finish milestones for each phase or stage of work, or related work to be performed by the Department or other involved parties.
 - d) A log identifying the schedule constraints used in the Progress Schedule and reason for using each constraint.
 - e) A description of the calendar(s) used in the Progress Schedule to indicate the Calendar ID, number of work days per week, number of shifts per day, and number of hours per day as well as the anticipated number of non-working days per month for each calendar with considerations, as applicable, for holidays, normal weather conditions; as well as for seasonal or other known or specified constraints and restrictions (i.e. traffic, local events, environmental, permits, utility, etc.).
 - f) A description of any known problems or anticipated issues that may impact the schedule; and any actions taken, proposed, or needed to correct the problems.
2. Progress Schedule Update Narrative: The Progress Schedule Update Narrative shall include the following written information:
- a) A description of the current status of the project in terms of the current actual percent complete by total earnings relative to the SOR planned percent complete; as well as the scheduled completion dates of the interim milestone(s) and project completion.
 - b) A description of any deviations from scheduled performance in terms of the scheduled completion dates of the interim milestone(s) and project completion since the previous schedule submission, including a statement explaining why any of the schedule milestone date(s) is forecast to occur after the specified date(s).
 - c) A description of the work performed since the previous Progress Schedule submission and any deviations from the work scheduled.
 - d) A description of major changes in the Contractor's work plan in terms of sequence of construction, shifts, manpower, equipment, or materials.
 - e) A description of any deviations in project critical path since the previous Progress Schedule submission.
 - f) A listing of adverse weather dates and number of days lost this period due to adverse weather or conditions resulting from adverse weather. List the activities affected and any impacts to the critical path.
 - g) A description of problems encountered or anticipated since the previous Progress Schedule submission, including an explanation of any corrective actions taken or required to be taken.

- h) A description of work planned for the next update period and actions to be taken by the Department or other involved parties.

C. Progress Earnings Schedule – The Progress Earnings Schedule shall consist of the following:

1. Activity Cost-loading Report (ACR): An Activity Cost-loading Report (ACR) to show a listing of the budgeted costs for each cost loaded activity, an aggregate sum of the budgeted costs for each resource (bid item), and an overall summary of the budgeted costs for the project. The ACR shall be grouped by Resource ID and sorted by Activity ID and shall show for each activity the Activity ID, Activity Name, Price/Unit, Budgeted Unit (Quantity), Budgeted Cost, Actual Cost, Remaining Cost, and At Completion Cost.
2. Progress Earnings Schedule S-Curve: The Progress Earnings Schedule shall depict in a Progress S-Curve the Contractor's anticipated monthly cumulative progress, expressed as a percentage of cumulative planned earnings to date relative to the Total Contract Value, based on remaining cost data generated from the cost-loaded Progress Schedule. The Progress Earnings Schedule shall be updated monthly to show the current actual monthly and cumulative earnings to date based on the Contractor's progress payment estimate and the projected monthly and cumulative earnings for the remaining payment periods based on the remaining cost data generated from the Progress Schedule. The Progress Earnings Schedule S-Curve shall be submitted in an electronic format on the VDOT Form C-13CPM.

V. REPORTING AND SUBMITTAL REQUIREMENTS FOR PROGRESS SCHEDULE SUBMISSIONS

Unless directed otherwise by the Engineer, the Contractor shall submit for each Progress Schedule submission the following submittal items. Each electronic file submittal shall have a unique file name prefixed by the Contract ID to identify the Contract, submission type and order of submission, and date of submittal (e.g. C00012345B01_B-1_12-30-10.xer, C00012345B01_U-1_1-10-11.xer, etc.). The Progress Schedule submittals shall include:

1. A transmittal letter to the Engineer, identifying the date of submittal and which Progress Schedule is being submitted for review.
2. Two (2) sets of data compact disks (CD) containing the electronic working export file copy of the Progress Schedule in an "XER" file format in version 6.2 or lower. Each CD shall be labeled to indicate the Contract ID, type of submission, filename, and submittal date.
3. Two (2) sets of paper copies of the following schedule reports:
 - a) Schedule calculation log.
 - b) A legible time-scaled bar-chart plot of the Progress Schedule organized by WBS and sorted by early start to show for each activity: the Activity ID, Activity Name, Original Duration, Remaining Duration, Start and Finish dates, Activity Percent Complete, and Total Float. The bar-chart plot shall identify the project critical path (longest path).
4. Electronic file copies by email of the following:
 - a) A working export file of the Progress Schedule in an "XER" file format in version 6.2 or lower.
 - b) Electronic "PDF" copy of the tabular Predecessor/Successor report sorted in ascending order by Activity ID to show the following:

- i) Activity ID;
 - ii) Activity Name;
 - iii) Original Duration;
 - iv) Remaining Duration;
 - v) Early Start;
 - vi) Early Finish;
 - vii) Late Start;
 - viii) Late Finish;
 - ix) Total Float;
 - x) Critical (Yes or No);
 - xi) Predecessors: Activity ID, Activity Name, Early Start, Early Finish, Relationship Type, Lag, Driving (Yes or No), Constraint, and Constraint Date;
 - xii) Successors: Activity ID, Activity Name, Early Start, Early Finish, Relationship Type, Lag, Driving (Yes or No), Constraint, and Constraint Date.
- c) Electronic "PDF" copy of the Progress Schedule Narrative.
 - d) Electronic "PDF" copy of the Progress Earnings Activity Cost-loading Report (ACR).
 - e) Electronic "PDF" copy of the Progress Earnings Schedule S-Curve.
 - f) A working file of the Progress Earnings Schedule (VDOT Form C-13CPM).

VI. FAILURE TO SUBMIT PROGRESS SCHEDULES

The Engineer will take necessary actions in accordance with the following for failure on the part of the Contractor to submit the required Progress Schedules:

1. If the Contractor fails to submit his/her complete Preliminary Progress Schedule at least two (2) business days prior to the Scheduling Conference, the Contractor shall not commence Work, with the exception of project start-up activities such as submittals, mobilization, surveying, construction access and signage, erosion and sedimentation controls, etc., until after seven (7) calendar days from the date the Contractor submits his/her complete Preliminary Progress Schedule, unless otherwise approved in writing by the Engineer.
2. If the Contractor fails to submit his/her complete Baseline Progress Schedule within forty-five (45) calendar days after the NTP date or as approved by the Engineer, the Engineer will delay approval of the Contractor's next monthly progress estimate following the due date of the Baseline Progress Schedule until such time as the Contractor has satisfied the submittal requirements.
3. If the Progress Schedule submission is deemed unacceptable by the Engineer; and the Contractor fails to submit an acceptable Progress Schedule within fourteen (14) calendar days after the Engineer's request, the Engineer will delay approval of the Contractor's next monthly progress estimate following the due date of the Progress Schedule until such time as the Contractor has satisfied the submittal requirements.
4. If the Contractor fails to provide a Progress Schedule Update or if a Revised Progress Schedule is required as specified herein and the Contractor fails to provide such a Progress Schedule, the Engineer will delay approval of the Contractor's next monthly progress estimate following the due date of the Progress Schedule until such time as the Contractor has satisfied the submittal requirements.

5. If the Contractor fails to provide an acceptable Final As-built Progress Schedule as specified, the Engineer will delay approval for payment of the Contractor's final progress estimate until such time as the Contractor has satisfied the submittal requirements.

Please note: Delays resulting from the Contractor's failure to provide the Progress Schedule in accordance with the requirements set forth herein will not be considered just cause for extension of the Contract time limit or for additional compensation.

VII. REVIEW AND ACCEPTANCE

The Engineer will review all Progress Schedule submissions within fourteen (14) calendar days of receipt of the Contractor's complete submittal, unless subsequent review meetings are necessary, as determined by the Engineer. The Engineer's review for acceptance will not commence until all required submittal items and schedule information as defined herein are provided. Acceptance by the Engineer will be based only on completeness and conformance with the requirements of the Contract.

If the Contractor's Progress Schedule submission is deemed to be acceptable, the Engineer will respond with a written notice of acceptance, which may include comments or minor concerns on the submission and/or a request for clarification or justification. When the Engineer's response include any comments, concerns, or request for clarification or justification, the Contractor shall respond accordingly within seven (7) calendar days of receipt of the Engineer's response. The Contractor's response may include a resubmission of the Progress Schedule to address the Engineer's comments or concerns or provide clarification or justification accordingly.

If the Contractor's Progress Schedule submission is deemed to be unacceptable, the Engineer will issue a written notification of non-conformance, which will include a request for resubmission and comments describing the deficiencies prompting the Engineer's decision. At the Engineer's discretion, the Contractor may be required to attend a schedule review meeting to discuss the issues prompting the Engineer's decision or to facilitate review and acceptance of the Progress Schedule submission.

When the Progress Schedule submission is deemed by the Engineer to be unacceptable, the Contractor shall revise and re-submit the Progress Schedule submission accordingly, within seven (7) calendar days of receipt of the Engineer's response.

Review and acceptance by the Engineer will not constitute a waiver of any Contract requirements and will in no way assign responsibilities of the work plan, scheduling assumptions, and validity of the schedule to the Department. Failure of the Contractor to include in the Progress Schedule any element of work required by the Contract for timely completion of the project will not excuse the Contractor from completing the Work within the Contract specified interim milestone(s) or the Contract time limit, as applicable.

VIII. MONITORING THE WORK AND ASSESSING PROGRESS

- A. Monitoring The Work** – The Engineer will monitor the Work regularly to identify deviations from the Contractor's scheduled performance relative to the SOR. The Contractor shall notify the Engineer at least two (2) working days in advance of any changes in the Contractor's planned operations or critical stage work requiring Department oversight or inspection. The Contractor shall attend a monthly progress schedule meeting with the Engineer on a day agreed to by the Contractor and the Engineer. The Contractor shall furnish his/her detailed 30-day look-ahead schedule at the progress meeting and shall be prepared to discuss the current status of the Work and planned operations for the following thirty (30) calendar days. The 30-day look-ahead schedule shall be based on the Contractor's current monthly Progress Schedule Update.

B. Progress Evaluation – Progress will be evaluated by the Engineer at the time of the monthly progress estimate relative to the SOR. The Contractor’s actual progress will be considered unsatisfactory if any one of the following conditions occurs:

1. The actual total earnings to date percentage for work completed, based on the Contractor’s progress payment estimate, falls behind the SOR planned cumulative late dates earnings percentage. Payments for Stored Materials, Materials on Hand, or Adjustments (asphalt, fuel, etc.) shall not be included in the actual progress earnings.
2. The calculated completion date of a Contract interim milestone is later than the specified completion date by more than twenty-one (21) calendar days.
3. The calculated project completion date is later than the Contract fixed completion date by more than forty-five (45) calendar days.

C. Progress Deficiency and Schedule Slippage – When the Contractor’s actual progress is trending toward unsatisfactory status, the Engineer will request a meeting with the Contractor to discuss any actions taken or required by the Contractor to reverse this trend and to correct the progress deficiency or schedule slippage.

When the Contractor’s actual progress is deemed unsatisfactory as defined by any one of the conditions listed under **Progress Evaluation** of this provision, the Engineer will issue a written notice of unsatisfactory performance to advise the Contractor that five (5) percent retainage of the monthly progress estimate is being withheld and will continue to be withheld as described in Section 109.08(c), for each month the Contractor’s actual progress is determined to be unsatisfactory, unless there is a pending decision by the Engineer on a request for modification of the Contract for which the Contractor has previously provided documentation as required.

When the Contractor fails to respond with good faith efforts as described herein to restore satisfactory progress, the Engineer will issue a notice to indicate that he may recommend the Contractor be temporarily disqualified from bidding on Contracts with the Department as described in Section 102.08 of the Specifications, if progress remains unsatisfactory at the time of preparation of the next monthly progress estimate following the Engineer’s notice. Prior to recommendation for removal from the list of pre-qualified bidders, the Engineer will allow the Contractor fourteen (14) calendar days from the date of the unsatisfactory performance notice to respond. Such “good faith” efforts shall be provided in sufficient detail to allow the Engineer to fully evaluate the Contractor’s plans for recovery. As an example of good faith efforts, the Contractor may submit to the Engineer, a proposed recovery plan in the form of a Progress Schedule Update and a written statement to describe the Contractor’s proposed actions and timeframe to correct the progress deficiency or schedule slippage. The Contractor may also submit to the Engineer a written explanation and supporting documentation to establish that such delinquency was attributable to conditions beyond his/her control. Any schedule adjustments resulting from a recovery plan will be reviewed in accordance with Section VII, but the modified Progress Schedule Update shall not replace the current SOR.

When the Engineer determines the Contractor’s progress is again satisfactory the five (5) percent retainage previously withheld will be released to the Contractor in accordance with the provisions of Section 109.08 (c) of the Specifications.

If the Contractor is temporarily disqualified from bidding on Contracts with the Department, the Contractor will not be reinstated until either the Engineer deems that his/her progress has improved to the extent that the Work can be completed within the Contract time limit or the project has received final acceptance in accordance with the provisions of Section 108.09.

IX. MEASUREMENT AND PAYMENT

Required Progress Schedule submissions will be measured and paid for in accordance with the following:

A. Basis of Payment – Progress payments will be made in accordance with the following:

1. Progress payments for the Baseline Progress Schedule pay item will be made as follows:
 - a) A twenty-five (25) percent of the Contract bid item lump sum amount will be made upon acceptance of the Preliminary Progress Schedule submission.
 - b) A seventy-five (75) percent of the Contract bid item lump sum amount will be made upon acceptance of the Baseline Progress Schedule submission. When a Baseline Progress Schedule is provided in lieu of a Preliminary Progress Schedule, a payment of one hundred (100) percent of the Contract bid item lump sum amount will be made upon acceptance of the Baseline Progress Schedule submission.
2. Progress payments for the Progress Schedule Update pay item will be made as follows:
 - a) Progress payments of one each (1 EA) at the Contract bid item unit price will be made upon acceptance of the Progress Schedule Update submission.
 - b) A Revised Progress Schedule may be required in lieu of and paid for upon acceptance as a Progress Schedule Update, as determined by the Engineer. When a Revised Progress Schedule is required by the Engineer, in addition to a regular Progress Schedule Update submission, progress payments of one each (1 EA) at the Contract bid item unit price will be made under the pay item for Progress Schedule Updates upon acceptance of the Revised Progress Schedule submission.
 - c) Upon approval, the SIA shall be incorporated into the Progress Schedule Update or Revised Progress Schedule, as directed by the Engineer, and paid for as a Progress Schedule Update. When a SIA is required in addition to a regular Progress Schedule Update submission, progress payment of one each (1 EA) at the Contract bid item unit price will be made upon approval under the pay item for Progress Schedule Update.
 - d) Progress payments of one each (1 EA) at the Contract unit price will be made upon acceptance of the Final As-built Schedule submission.
3. No separate measurement and payment will be made for attendance of the Scheduling Conference, progress meetings or other schedule related meetings. All costs associated with attendance of the scheduling meetings will be considered incidental.

B. Payment Items – Payments for all associated costs to attend schedule meetings, prepare, update, revise, and/or furnish the Progress Schedule will be made under the following pay items:

Pay Item	Pay Unit
25565 - Baseline Progress Schedule	Lump Sum
25567 - Progress Schedule Update	Each