

Work Type Definition and Submittal Requirements

20.1 Project Scheduling

Work Type Definition

Page 1-2 details the work type definition. In order to become *pre-qualified* for this work type, please see the “Work Type Submittal Requirements” on pages 3-6.

I. Description

Develop and/or maintain schedules through all project phases utilizing Primavera P6 and the Critical Path Method (CPM) as well as other scheduling tools when necessary.

A. Level 1 Preconstruction

1. *Preconstruction Schedule Development* – Develop and/or work with MnDOT staff to develop schedules encompassing work required prior to letting.
2. *Ongoing Schedule Maintenance* – Work with MnDOT staff to provide timely schedule updates at specified intervals throughout the life of the project.

B. Level 2 Construction

1. *Critical Path Method (CPM) Schedule Review* – evaluate construction contractor’s CPM schedule for contract compliance and necessary requirements. Analyze/develop potential construction schedules with respect to required contract milestones and contract completion.
2. *Develop What-If project scenarios* – build schedule scenarios to be utilized in the analysis of What-If conditions during the construction of a project.
3. *Perform project schedule review* – Review schedules during the progress of work and perform timely analysis on the criticality of the schedule with respect to the work. Analyze schedules with respect to Earned Value to the owner.
4. *Provide expertise and consultation on schedule analysis* – Assist MnDOT staff in analyzing schedules and providing support for potential schedule disputes.

C. Level 3 Contract Time Determination

1. *Construction Schedule Development* – Develop and/or work with MnDOT staff to develop schedules encompassing construction activities during the preconstruction phase to estimate project construction time to determine allowable contract time.
2. *Construction Staging Determination and Analysis* – Review and develop potential construction staging alternatives and impacts with respect to construction contract time.

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II. Standards and Specifications

Standards and specifications required for a project under this work type may include the following:

- A. All work is in compliance with MnDOT policy, procedures and industry standards.
- B. All work is in compliance with current MnDOT schedule specifications.
- C. The work must comply with all project specific requirements and include sufficient level of detail, as dictated by the project scope, size, geographic locations & background conditions.

III. Provided By MnDOT

Information to be supplied by MnDOT for a project may include the following:

- A. All MnDOT plans, policies, manuals and contract documents as necessary.

IV. Provided by Consultant

Deliverables to be supplied by the consultant for a project may include the following:

- A. Construction Project Scheduling reports and documents.
- B. Analytical report of update schedule using approved CPM analysis software.
- C. Report on whether schedule complies with contract requirements.
- D. Ad hoc reports as requested by engineer.

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Work Type Submittal Requirements

A consultant firm becomes pre-qualified based on the qualifications of the personnel who are employed by the firm and by meeting the demonstrated requirements

Key Personnel Requirements	
Minimum Number of Staff:	<ul style="list-style-type: none"> At least one key employee with the proper professional certification, license, degree and/or applicable experience.
Professional Certification/Licensure:	<p>The following Licensures and/or Certifications are applicable to this work type:</p> <ul style="list-style-type: none"> Licensure as a Professional Engineer in the State of Minnesota American Accreditation of Cost Engineers Project Scheduling Professional (AACE-PSP) Project Management Institute Scheduling Professional (PMI-SP) College/University degree in a related field which can include: Engineering, Construction Technology, Construction Management, Civil Engineering or another degree as approved by MnDOT.
Work Type Submittal Requirements*	
<p>I. Resume and Relevant Project Experience Form (Form PQ1)</p> <p><i>Submit in Word format</i></p>	<p>I. Complete Parts, 1, 1A, and 2 of form PQ1</p> <p>Part 1: Fill out general information and names of personnel, including other professional and technical support personnel. Specify clearly which qualification level(s) is(are) sought.</p> <p>Part 1A: Fill out one “1A” for each person listed in Part 1. Experience of the qualified staff must be demonstrated by reference to completed projects in the activities for which pre-qualification is desired.</p> <p>Criteria applicable to all Levels in this work type are as follows:</p> <ul style="list-style-type: none"> Eight (8) years of project management experience for each qualified personnel seeking prequalification. The following will be considered in lieu of the 8 years of project management experience: <ul style="list-style-type: none"> Up to 4 years’ experience can be substituted with a related college/university degree. Related degrees

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	<p>can include: Engineering, Construction Technology, Construction Management, Civil Engineering or another degree as approved by MnDOT.</p> <ul style="list-style-type: none">• Licensure as a professional engineer in the State of Minnesota can be substituted for 4 years of experience.• American Accreditation of Cost Engineers Project Scheduling Professional (AACE- PSP) accreditation will be acceptable for entire experience/education replacement.• Project Management Institute Scheduling Professional (PMI-SP) accreditation will be acceptable for 5.5 years of experience when accompanied by an approved degree.• PMI-SP accreditation will be acceptable for 2.5 years of experience when not accompanied by an approved degree. <ul style="list-style-type: none">• Level 1 Fill out for each person listed in Part 1 as applicable. Experience listed must demonstrate a minimum of 2 Full Time Equivalent years of experience in Preconstruction Scheduling for Heavy/Highway (or similar) type projects with at least one year utilizing Primavera P6.• Level 2 Fill out for each person listed in Part 1 as applicable. Experience listed must demonstrate a minimum of 2 Full Time Equivalent years of experience in building CPM Construction Schedules or Reviewing CPM Construction Schedules on Heavy/Highway (or similar) type projects to have taken place within the last 5 years. Experience must include:<ul style="list-style-type: none">• Evaluating CPM schedules for contract compliance.• Developing What-If schedules for scenario analysis.• Reviewing CPM schedules.• Analyzing CPM schedules for dispute resolutions.• Level 3 Fill out for each person listed in Part 1 as applicable. Experience listed must demonstrate a minimum of 2 Full Time Equivalent years of experience in Construction Scheduling on Heavy/Highway (or similar) type projects to have taken place within the last 5 years. Primavera P6 must
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	<p>have been utilized for at least 1 year of this time. Experience must include:</p> <ul style="list-style-type: none"> • Developing CPM schedules. • Knowledge of construction staging and controlling specifications. <p>Part 2: Project Examples listed must correlate to those described below in “Project Example Requirements”. Qualifying experience of staff in the category/level of work must be documented in part 1A.</p> <p>Part 3: Not applicable for this work type.</p>
<p>II. Project Example Requirements</p> <p><i>Submit in PDF format</i></p>	<ul style="list-style-type: none"> • Submit relevant work examples as specified below (clearly mark/label each example as Level 1, 2, or 3). All examples are required to include work completed in the last 5 years in the activities required for the level for which pre-qualification is applied. • Level 1 <ul style="list-style-type: none"> a. CPM Schedule for the Preconstruction Phase of a project as completed in Primavera P6 including WBS, Activities, Start Dates, Finish Dates, Original Duration, Total Float and Gantt Diagrams. b. Schedule narrative to the owner or project representative (i.e. Baseline, Schedule Update, Impact Analysis, and What-if Schedules). • Level 2 <ul style="list-style-type: none"> a. CPM Schedule for the Construction Phase of a project as completed in Primavera P6 including WBS, Activities, Start Dates, Finish Dates, Original Duration, Total Float and Gantt Diagrams. b. Schedule narrative to the owner or project representative (i.e. Baseline, Schedule Update, Impact Analysis, and What-if Schedules). • Level 3 <ul style="list-style-type: none"> a. CPM Schedule for the Construction Phase of a project as completed in Primavera P6 including WBS, Activities, Start Dates, Finish Dates, Original Duration, Total Float and Gantt Diagrams. b. Schedule narrative to the owner or project representative (i.e. Baseline, Impact Analysis, and What-if Schedules).

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<p>III. Proof of Professional Certification/Licensure</p> <p><i>Submit in PDF format</i></p>	<p>A. Provide current copies of applicable Professional Certifications/Licensures.</p>
<p style="text-align: center;">*Work Type Submittal Instructions:</p> <p>Create a CD or flash drive that includes the following individual files or folders in this order:</p> <ul style="list-style-type: none">I. Resume and Relevant Project Experience Form (Form PQ1)II. Project Example Requirements (this should be a folder that includes individual files clearly named according to Parts 1, 1A, and 2 of the PQ1)III. Proof of Professional Certification/Licensure <p style="text-align: center;">Each file should be saved in the format identified above. Submit 5 copies of the CD or flash drive.</p>	