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Schedule Submittal Requirements

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A report presented to the Virginia Department of Transportation and
the VDOT-VT Partnership for Project Scheduling Advisory Board

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Abstract

The scheduling tools applied to manage a project should vary to reflect the scheduling risk associated with each project. Five scheduling categories are recommended to meet the varying scheduling needs of VDOT projects. This document describes the characteristics of projects in each of the five scheduling categories, the recommended schedule submittals for each category, and how they are used to establish and maintain schedule control during construction. Metrics used to monitor progress and thresholds for initiating action in the event that actual progress lags scheduled progress are also recommended and described.

Schedule Submittal Requirements

Highway construction projects undertaken by VDOT vary in terms of the project setting, type of work, operational complexity, and impacts to the public. Therefore, a single construction scheduling tool is not appropriate for all projects. The scheduling tools applied to manage the project should also be varied based on the scheduling risk associated with each project to balance the level of scheduling effort required to provide the required information with the level of schedule control desired given the scheduling risks.

The VDOT-VT Partnership for Project Scheduling recommends five scheduling categories to meet the varying scheduling needs of VDOT projects. As schedule risks increase, so does the need for more detailed schedule information to adequately monitor progress and assess schedule impacts. These five categories have been developed and defined based on recommendations from VDOT, construction industry personnel, and a review of scheduling requirements used by other state transportation agencies. The recommended submittals are based on the importance of and essential information for:

- Controlling project start-up
- Establishing a baseline schedule
- Maintaining the schedule during construction
- Measuring progress

This document describes the characteristics of projects in each of the five scheduling categories, the recommended schedule submittals for each category, and how they are used to establish and maintain schedule control during construction. The submittals requirements are enumerated and categorized by schedule phase in the attached Table 2.

Schedule Objectives

Construction schedules are commonly developed by contractors, submitted to the owner or review, and are for use by the project team. There are many objectives of a construction schedule, depending on the user. From the perspective of a construction owner, the principle objectives are to document and communicate the contractor's intended work plan and provide a baseline for monitoring progression of the work. These are common objectives to the three phases of project schedules: project start-up, baseline development, and schedule update. Submittals for each phase differ based on the intended purpose.

- **Start-up schedule** – serves as a preliminary baseline schedule used to monitor progress until development of the baseline schedule is complete
- **Baseline schedule** – provides a comprehensive view of the contractor's intended work plan and serves four distinct purposes:
  - Demonstrates that the work plan meets the contractual requirements
  - Communicates necessary actions for which the owner is responsible
  - Serves as a datum for measuring progress
  - Serves as a basis for quantifying impacts to the schedule
- **Update schedule** – serves to document the work completed to date, update the remaining work schedule to reflect the current work plan, and regularly provide the data necessary to measure progress

Description of Categories

The decision of which scheduling category provides the appropriate level of control for a project is best made by individuals familiar with and having a full understanding of the work and the conditions under which it is expected to be performed. The decision should be based on an analysis of scheduling risks in terms of project complexity, schedule constraints, delay consequences, and project uncertainty. To aid in the determination, a qualitative description of the project characteristics, schedule risks, and recommended submittals associated with each category is included. Also, attached is a quantitative checklist that can be used to assess schedule risks to assist in determining an appropriate schedule category.

Category I

Category I projects are those requiring a short duration to perform straightforward operations. These projects consist of very few components typically constructed in a rural setting where impacts to traffic and commercial activity are negligible. Projects likely to be included are highway and bridge rehabilitation projects, emergency repairs, minor drainage improvements, widening or turning lane projects, pavement overlays, and appurtenance improvements.

The schedule risks associated with such projects are minimal, as the likelihood of delay is minimal and the resulting impact is negligible. Delays are not likely because the work is familiar and performed under favorable conditions. Typically, the only schedule constraint is the fixed completion date, which yields the minimum potential for delay. Given the limited project complexity and scope of work, the uncertainty associated with the projects is slight and the consequences of a delay are negligible.

The submission of minimum schedule information is recommended due to the limited schedule risks associated with Category I projects. The submittals include a project narrative, summary table, and progress curve based on anticipated project earnings. The narrative is a brief written document describing the work plan and the timing of significant events during construction. The work plan should be described in terms of the intended sequence of work, means and methods, and resources. The narrative should also include anticipated production rates for major work items and data supporting the earnings progress curve. The summary table is a listing of the dates on which significant events are scheduled to occur.

Because of the short duration and lack of uncertainty associated with these projects, the schedule information submitted is recommended to be updated at the request of the engineer. Such a request should be made when the submittals do not reflect field conditions. This may be evidenced by deviations from the work plan, occurrence of significant events after the scheduled dates, or actual project earnings lagging behind the anticipated earnings curve.

Category II

Category II includes straightforward projects that are typically completed in a single construction season. These projects create a minimal impact to traffic and/or commercial activity and require the construction of a limited number of components. They are typically constructed in a rural setting, but may also be smaller projects in an urban setting. Projects likely to be included are intersection improvements, large

emergency repairs, drainage improvements, utility relocations, large overlay projects, and simple highway reconstruction.

The schedule risks associated with such projects are low, as both the likelihood of a delay and the resulting impacts are small. The projects involve familiar work, consisting of a limited number of components constructed under typical conditions. The schedule may be constrained by both a fixed completion date and a time window for performing some portion of the work, perhaps restrictions on utility disruptions or through maintenance of traffic (MOT) requirements. There is not a great deal of uncertainty associated with the projects, although performance may be impacted by traffic conditions or underground utilities. The greatest impact of delays is typically borne by the traveling public. However, delays may also result in a simple single season project a being extended through the winter season.

Due to scheduling risks slightly greater than Category I, it is recommended that a bar chart be included to supplement the project narrative, summary table, and anticipated earnings curve. The bar chart provides scheduled start and finish dates for project activities, but does not directly indicate the interrelationships between activities. The dates associated with activities contributing to a project milestone can be used to monitor progress toward the milestone. Additionally, the bar chart allows for a progress curve based on activity duration, where the percentage of work represented by each activity is determined by the ratio of its duration to the sum of all activity durations.

It is recommended that Category II schedules be updated monthly to make proper use of the bar chart and duration progress curve. Regular periodic updates will provide the information necessary to evaluate project status based on actual activity durations, start dates, and finish dates.

Category III

Category III projects are moderately complex and typically require more than one construction season to complete. These projects consist of a number of components that may provide for sequencing alternatives. Projects likely to be included are new construction, highway or bridge reconstruction, major realignment or widening, major intersection improvements, and large scope utility relocations. Work may occur in either a rural or urban setting. The complexity of rural projects is typically a result of the scope of work, while the complexity of urban projects stems from interaction with traffic and commercial activity.

The schedule risks associated with Category III projects are moderate due to the complexity of the work. The potential for delaying events during construction is greater than average. The work required is generally familiar, although some segments may be less common and result in uncertainty regarding the time required for performance. Significant components of the project may be subcontracted and/or performed under challenging conditions. The project may include a very limited number of interim milestones, in addition to a fixed completion date. There are also expected to be maintenance of traffic, utility, or environmental regulations restricting the performance of some portions of the work. The level of project uncertainty is moderate, which may result from many sources such as unfavorable subsurface conditions, uncertain utility locations, or limited resource availabilities. The consequences of delays are not limited to extended traffic disruptions, but may also include impacts to commercial activities or political interests.

Given the complexity of the work, schedule constraints, and potential for delay, it is recommended that CPM schedules be developed and maintained for Category III projects. The CPM schedule provides the network for evaluating any delaying events that occur during construction and allows the complexity of the work to be understood through the clearly identified relationships between activities. While the CPM schedule will benefit the project team by serving as a management tool, it requires time and effort to develop. Therefore, it is recommended that a start-up schedule be submitted to allow work to start and to establish schedule control until the baseline CPM schedule is in-place. This start-up schedule should provide activity details for the timeframe set aside for baseline development and a summary level of detail for the remainder of the project. The start-up schedule serves the same function as the baseline and should be maintained on a monthly basis until it is superseded by the baseline schedule.

The baseline submission should include the narrative, summary table, and earnings progress curve in addition to the CPM schedule. The Category III narrative includes a discussion of the schedule organization system, critical path, and the procurement of long lead items. It is recommended that total contract value be loaded into the baseline schedule and the scheduling software used to generate a progress curve based on scheduled earnings.

It is recommended that a meeting be held monthly during construction to discuss the project status and remaining work in terms of the schedule. The schedule should be updated monthly to provide the information necessary for the schedule meeting and allow project status to be evaluated regularly based on current information. Included with the update should be an update narrative that describes the work performed, changes to the sequence of work, delaying events and the resulting impact, and project progress during the update period. A project summary schedule should be provided for evaluating progress at a management level. A 30-day look-ahead schedule is recommended to focus efforts on activities scheduled to start, finish, or on which work is scheduled to be performed in the upcoming period.

A CPM schedule allows progress towards the project completion milestone to be monitored in terms of unconstrained completion date or total float on the critical path if a finish date constraint has been included. Progress can also be evaluated relative to the earnings progress curve, duration progress curve, and dates provided in the summary table.

Category IV

Category IV projects are large, complex projects, typically constructed in an urban setting and requiring three or more construction seasons to complete. The projects consist of a large number of components that often require complex operations to construct. Major highway or bridge construction, tunnel construction, major bridge replacements, and major highway realignment or widening are likely Category IV projects.

The potential for delaying events is great and the resulting schedule impacts are significant. These projects are generally large in scope, heavily constrained in terms of the schedule, and include extraordinary segments of work. Due to the number of components and uniqueness of the work, it is common that several major subcontractors are involved. While a great deal of planning and design is required for such projects, the

level of uncertainty remains high due to the large number of sources. Delay consequences may be great and far reaching due to the magnitude of the work.

It is recommended that a CPM schedule be developed for these projects and loaded with total contract value, two or more project commodities, and resources at the crew level. Commodity loading will provide for commodity progress curves, which can be used along with earnings and duration progress curves to monitor progress. Resource loading allows consideration of crew availability when quantifying the impacts of changes in scope.

A weekly scheduling meeting should be held to discuss work recently performed and immediately upcoming. This information should be provided weekly in a 3-week look-ahead and 1-week look-behind schedule. The schedule should be updated monthly and include an update narrative, 60-day look-ahead schedule, and summary schedule.

Category V

Category V is reserved for projects that are part of a larger construction program. These programs consist of a number of projects that would otherwise typically be Category III or IV projects. It is recommended that Category IV scheduling requirements be used with the following modifications. The work breakdown structure should incorporate defined program levels to allow the schedule to be summarized and incorporated into a master program schedule. The monthly schedule update should include a 90-day look-ahead schedule and a project management schedule. Weekly scheduling meetings should make use of 4-week look-ahead and 1-week look-behind schedules.

Level of Detail

The level of detail required of a construction schedule depends on its intended use. A schedule hierarchy consisting of four levels is used in Table 2 to describe the detail of CPM schedules. The levels are increasingly detailed to allow greater control and reporting of project progress. Depending on the level of detail desired, the schedule hierarchy presents the project schedule at various summary levels, where level represents a node in the project organization or work breakdown structure.

Level 1 – Management Summary Schedule:

The Management Summary Schedule is used to communicate the status of a project at an executive management level. It is typically a single page, time-scaled bar chart including all project work packages and milestones. It provides a graphical executive summary of the overall plan for completion of the project.

Level 2 – Project Summary Schedule:

The Project Summary Schedule is used to communicate project status at a project management level. It is typically a time-scaled bar chart consisting of the components comprising the project work packages. The level of detail is sufficient to track the progress of work packages toward milestones, including project completion. The number of activities depends on the type, size, and complexity of the project. The schedule

should be capable of depicting the status of each work package. It can also be used for small projects with a minimum number of continuous work items where the controlling items determine the overall project duration.

Level 3 – Project Control Schedule:

The Project Control Schedule is used by on-site management and control staff to plan, control, and monitor progress of the work. The schedule contains activities representing the primary work tasks of each project component. The Project Control Schedule lends itself to CPM scheduling, which allows the longest network path to be clearly identified. The level of detail is dependent upon project type, size, complexity, and degree of risk. However, the schedule should include all measurable parts of each project component such that the status of each can be determined from the schedule.

Level 4 – Look Ahead/Behind Schedule:

The Look Ahead/Behind Schedule is used to depict resource requirements for a short time period. The schedule consists of the subtasks required to complete the activities contained in the Project Control Schedule. It is essentially the "Nuts and Bolts Schedule" that allows the contractor to plan and control his daily and weekly activities. The schedule is often in bar chart or tabular format.

Progress Metrics

As the schedule risks increase, the submittals include a greater level of detail to provide the project team with metrics for monitoring progress and initiating action in the event that actual progress lags scheduled progress. The recommended metrics are in the form of either milestone dates or progress curves. Milestone dates are dates on which significant events are scheduled to occur and provide a periodic check of progress. It is recommended that progress curves be based on earnings, duration, or commodities. The curves provide for a more continuous means of monitoring progress by indicating the amount (or percentage) scheduled to be complete at any point in time during the construction.

Milestone events represent the completion of a work segment and may be defined in the contract and be associated with a contractually required completion date. Milestones can be used to monitor progress towards the project completion milestone, regardless of whether the milestone dates are contractually required or a product of the contractor's work plan. When CPM techniques have been employed to develop the schedule, total float associated with each activity may be used to monitor progress toward the project completion milestone.

A schedule presented as a Gantt or bar chart, regardless of whether it was developed using CPM techniques, can serve as both a communication and progress measurement tool. The planned order and timing of activities is evident from the chart and it can be compared to the actual field progress. The schedule may also be used to develop progress curves based on the financial value, duration, or commodity quantity associated with each activity. Progress has historically been monitored in terms of the value of work completed. Monitoring in terms of duration places more emphasis on activities requiring significant time to complete and monitoring by installed commodities allow specific segments of the work to be closely tracked.

Projects of greater size and complexity are associated with greater schedule risks, but also present greater opportunities for schedule recovery through changes in sequence, means and methods, or resource applications. Therefore, it is recommended that the thresholds for action increase with each category. Thresholds associated with progress curves are typically given as a percentage of the total. The threshold percentage remains constant and the amount by which actual progress lags the schedule increases with the total. Milestone thresholds are typically set as a number of calendar days and the thresholds are increased accordingly. The recommended metrics and thresholds are provided in Table 1.

Table 1: Recommended Progress Metrics and Thresholds for Action

		Progress Curves			Milestones	
		Earned Value	Activity Duration	Project Commodity	Intermediate	Project Completion
Category	I	10%	-	-	7 days	14 days
	II	10%	10%	-	7 days	14 days
	III	10%	10%	-	14 days	21 days
	IV	10%	10%	10%	14 days	30 days
	V	10%	10%	10%	21 days	45 days

Summary

The scheduling risks associated with highway construction projects vary in terms of project complexity, schedule constraints, delay consequences, and project uncertainty. To apply a scheduling tool appropriately reflecting the schedule risks, five categories of construction schedules have been recommended for the vast majority of projects undertaken by VDOT. The typical characteristics of projects and the submittal information recommended for each category was described. A schedule risk assessment checklist was developed to provide a quantitative means of determining the appropriate scheduling category.

Schedule submittals for each category are recommended to serve the schedule functions fundamental to the project team, and specifically the need to communicate the intended work plan and provide a baseline for measuring progress. The submittal information was organized and described in terms of controlling start-up, establishing a baseline, and maintaining the schedule. Metrics used to monitor progress and thresholds for initiating action in the event that actual progress lags scheduled progress were also recommended and described.

Table 2: Recommended Submittals by Schedule Phase

Scheduling Phase		Project Category I	 II	 III	 IV	 V
Control Start-Up	Start-up Schedule			**CPM Schedule** Level 3 detail for first 60 days and level 2 detail for remainder of the project Loaded with total contract value Updated monthly until Baseline Schedule submitted	**CPM Schedule** Level 3 detail for first 90 days and level 2 detail for remainder of the project Loaded with total contract value Updated monthly until Baseline Schedule submitted	**CPM Schedule** Level 3 detail for first 120 days and level 2 detail for remainder of the project Loaded with total contract value Updated monthly until Baseline Schedule submitted
Establish a Baseline	Baseline Narrative	1) Describe the sequence of construction, proposed means and methods, and crew utilization 2) List project milestones and key dates 3) List of Owner responsibilities and associated dates 4) Discuss known conditions with potential for schedule impact 5) Discuss key assumptions, including weather considerations 6) Production rates for major items 7) Provide data supporting anticipated earnings schedule	1) Describe the sequence of construction, proposed means and methods, and crew utilization 2) List project milestones and key dates 3) List of Owner responsibilities and associated dates 4) Discuss known conditions with potential for schedule impact 5) Discuss key assumptions, including weather considerations 6) Production rates for major items 7) Provide data supporting anticipated earnings schedule	1) Describe the sequence of construction, proposed means and methods, and crew utilization 2) List project milestones and key dates 3) List of Owner responsibilities and associated dates 4) Discuss known conditions with potential for schedule impact 5) Discuss key assumptions, including weather considerations 6) Production rates for major items 7) Explain the WBS, activity code, and activity ID system 8) Describe the critical path 9) Discuss procurement of long lead items 10) Provide data supporting anticipated earnings schedule	1) Describe the sequence of construction, proposed means and methods, and crew utilization 2) List project milestones and key dates 3) List of Owner responsibilities and associated dates 4) Discuss known conditions with potential for schedule impact 5) Discuss key assumptions, including weather considerations 6) Production rates for major items 7) Explain the WBS, activity code, and activity ID system 8) Describe the critical path 9) Discuss procurement of long lead items 10) Provide data supporting anticipated earnings schedule	1) Describe the sequence of construction, proposed means and methods, and crew utilization 2) List project milestones and key dates 3) List of Owner responsibilities and associated dates 4) Discuss known conditions with potential for schedule impact 5) Discuss key assumptions, including weather considerations 6) Production rates for major items 7) Explain the WBS, activity code, and activity ID system 8) Describe the critical path 9) Discuss procurement of long lead items 10) Provide data supporting anticipated earnings schedule
	Schedule Chart		**Bar Chart** 1) Level 3 schedule with 6 to 20 activities and 5 to 8 project milestones 2) Include planned and remaining activity durations 3) Include activity start dates relative to NTP date 4) Include percent of project represented by each activity calculated on the basis of activity duration and	**CPM Schedule** 1) Level 3 CPM schedule loaded with total contract value 2) Display activity sequence, principal constraints, and interdependencies 3) Include all activities, approvals, and clearances required to complete the work 4) Clearly identify activities on the critical path 5) Include layout consisting only of activities on the critical path	**CPM Schedule** 1) Level 3 CPM schedule loaded with total contract value, 2 commodities, and resources at the crew level 2) Display activity sequence, principal constraints, and interdependencies 3) Include all activities, approvals, and clearances required to complete the work 4) Clearly identify activities on the critical path 5) Include layout consisting only of activities on the critical path	**CPM Schedule** 1) Level 3 CPM schedule loaded with total contract value, 4 commodities, and resources at the crew level 2) Display activity sequence, principal constraints, and interdependencies 3) Include all activities, approvals, and clearances required to complete the work 4) Clearly identify activities on the critical path 5) Include layout consisting only of activities on the critical path 6) Incorporating defined levels into the WBS
	Control Table	1) Milestone dates 2) Start and finish dates for major work elements 3) Dates for key submittals 4) Order and delivery dates for major materials 5) Owner review or interface dates 6) Key meeting dates	1) Milestone dates 2) Start and finish dates for major work elements 3) Dates for key submittals 4) Order and delivery dates for major materials 5) Owner review or interface dates 6) Key meeting dates	1) Milestone dates 2) Start and finish dates for major work elements 3) Dates for key submittals 4) Order and delivery dates for major materials 5) Owner review or interface dates 6) Key meeting dates	1) Milestone dates 2) Start and finish dates for major work elements 3) Dates for key submittals 4) Order and delivery dates for major materials 5) Owner review or interface dates 6) Key meeting dates	1) Milestone dates 2) Start and finish dates for major work elements 3) Dates for key submittals 4) Order and delivery dates for major materials 5) Owner review or interface dates 6) Key meeting dates 7) Dates for key interfaces with other contracts
	Control Curve (Anticipated	Indirectly related to the schedule	Indirectly related to the schedule	Based on the schedule	Based on the schedule	Based on the schedule
	Control Curve (Commodity)				Based on the schedule	Based on the schedule

Table 2: Recommended Submittals by Schedule Phase (continued)

Scheduling Phase		Project Category I	II	III	IV	V
Maintain the Schedule	Schedule Meeting	Held jointly with project progress meeting	Held jointly with project progress meeting	Held to discuss schedule update	Held to discuss schedule update and look ahead schedules	Held to discuss schedule update and look ahead schedules
	Meeting Frequency			Monthly	Weekly	Weekly
	Schedule Update Frequency	As required by the Engineer	Monthly	Monthly	Monthly	Monthly
	Schedule Update Narrative			1) Describing the work performed 2) Describing actual or anticipated changes to logic and work sequence 3) Describing additional work and resulting schedule impact 4) Describing actual and proposed corrective actions taken 5) Discussing progress and deviations from scheduled performance 6) Including Claim Digger analysis 7) Discussing any changes to the information contained in the baseline narrative	1) Describing the work performed 2) Describing actual or anticipated changes to logic and work sequence 3) Describing additional work and resulting schedule impact 4) Describing actual and proposed corrective actions taken 5) Discussing progress and deviations from scheduled performance 6) Including Claim Digger analysis 7) Discussing any changes to the information contained in the baseline narrative	1) Describing the work performed 2) Describing actual or anticipated changes to logic and work sequence 3) Describing additional work and resulting schedule impact 4) Describing actual and proposed corrective actions taken 5) Discussing progress and deviations from scheduled performance 6) Including Claim Digger analysis 7) Discussing any changes to the information contained in the baseline narrative
	Look Ahead Schedule			1) 30-Day level 3 schedule	1) 60-Day level 3 schedule 2) 3-Week Look-Ahead / 1-Week Look-Back Level 4 schedule	1) 90-Day level 3 schedule 2) 4-Week Look-Ahead / 1-Week Look-Back Level 4 schedule
	Summary Schedule			Level 2 - Project summary schedule	Level 2 - Project summary schedule	1) Level 2 - Project summary schedule 2) Level 1 - Project management summary schedule
Measure Progress	Schedule Chart		Percent Complete by Duration	Percent Complete by Duration Critical Path / Total Float	Percent Complete by Duration Critical Path / Total Float	Percent Complete by Duration Critical Path / Total Float
	Control Table	Milestones met	Milestones met	Milestones met	Milestones met	Milestones met
	Control Curve (Anticipated	Percent Complete	Percent Complete	Percent Complete	Percent Complete	Percent Complete
	Control Curve (Commodity)				Accepted Quantity	Accepted Quantity
Control Limits	Intermediate Milestone	7-Days Behind	7-Days Behind	14-Days Behind	14-Days Behind	21-Days Behind
	Completion Milestone	14-Days Behind	14-Days Behind	21-Days Behind	30-Days Behind	45-Days Behind
	Control Curve (Anticipated	10 Percentage Points Behind	10 Percentage Points Behind	10 Percentage Points Behind Early Schedule	10 Percentage Points Behind Early Schedule	10 Percentage Points Behind Early Schedule
	Control Curve (Commodity)				10 Percentage Points Behind Early Schedule for Each Commodity	10 Percentage Points Behind Early Schedule for Each Commodity
	Percent Complete by Duration		10 Percentage Points Behind	10 Percentage Points Behind Early Schedule	10 Percentage Points Behind Early Schedule	10 Percentage Points Behind Early Schedule

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Schedule Risk Assessment

Project Number: _____
Project Description: _____
District: _____ **County:** _____
Assessed by: _____ **Date:** _____

Project Complexity

Type of Work	☐ Very familiar	☐ Familiar	☐ Unique
Number of Components	☐ 1 – 3	☐ 4 – 6	☐ 7 +
Number of Major Subcontractors	☐ None	☐ 1 – 2	☐ 3 +
Site Conditions	☐ Favorable	☐ Typical	☐ Unfavorable
Contract Value	☐ < $2 mil.	☐ $ 2 – 10 mil.	☐ > $10 mil.

Notes:

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Schedule Constraints

Project Completion	☐ Yes	☐ No	☐ Relaxed	☐ Aggressive
Interim Milestones	☐ Yes	☐ No	☐ Relaxed	☐ Aggressive
Environmental Restrictions	☐ Yes	☐ No	☐ Relaxed	☐ Aggressive
Maintenance of Traffic	☐ Yes	☐ No	☐ Relaxed	☐ Aggressive
Utility Disruption	☐ Yes	☐ No	☐ Relaxed	☐ Aggressive

Notes:

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Delay Consequence

Traffic Impact	☐ Low	☐ Moderate	☐ High
Commercial Impact	☐ Low	☐ Moderate	☐ High
Political Impact	☐ Low	☐ Moderate	☐ High
Schedule Impact	☐ Low	☐ Moderate	☐ High

Notes:

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Project Uncertainty

Underground Utilities	☐ Not applicable	☐ Known	☐ Uncertain
Traffic Conditions	☐ Favorable	☐ Typical	☐ Difficult
Potential Quantity Variance	☐ Low	☐ Moderate	☐ High
Resource Availability	☐ Not applicable	☐ Typical	☐ Limited
Subsurface Conditions	☐ Favorable	☐ Typical	☐ Difficult
Environmental/Archeological Impacts	☐ Not applicable	☐ Not likely	☐ Anticipated
Contract Delivery Method	☐ Design-Bid-Build	☐ Innovative Delivery	

Notes:

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Summary

Project Complexity	☐ Low	☐ Moderate	☐ High
Schedule Constraints	☐ Low	☐ Moderate	☐ High
Delay Consequence	☐ Low	☐ Moderate	☐ High
Project Uncertainty	☐ Low	☐ Moderate	☐ High

Schedule Risk Parameter	Schedule Category I	II	III	IV	V
Project Complexity		Low ←			→ High
Schedule Constraints	Low ←				→ High
Project Uncertainty	Low ←				→ High
Delay Consequence		Low ←			→ High

Recommended Scheduling Category: _____