

Schedule Guide for TxDOT Transportation Projects

Transportation Programs Division – Project and Portfolio Management Section (TPD-PPM)

Texas Department of

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The purpose of this schedule guide is to provide guidance regarding the process of when to create a project schedule, when baselines are required, what types of baselines are needed, and how baselines are revised. This will improve the use of schedules and baselines for project management and portfolio management, and facilitate consistent internal and external reporting.

For questions regarding this document, contact the Project and Portfolio Management HelpDesk via phone at 512-416-3333 or email at PPM_HelpDesk@txdot.gov.



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INTRODUCTION

The purpose of this document is to guide the user through the steps of determining whether a project schedule is needed by evaluating certain project characteristics. If a schedule is needed, the guidance continues through the process of creating an initial schedule, creating and assigning a Project Baseline, and assigning a Tracker Baseline Code. Additional explanation covers other types of baselines and when they are needed.

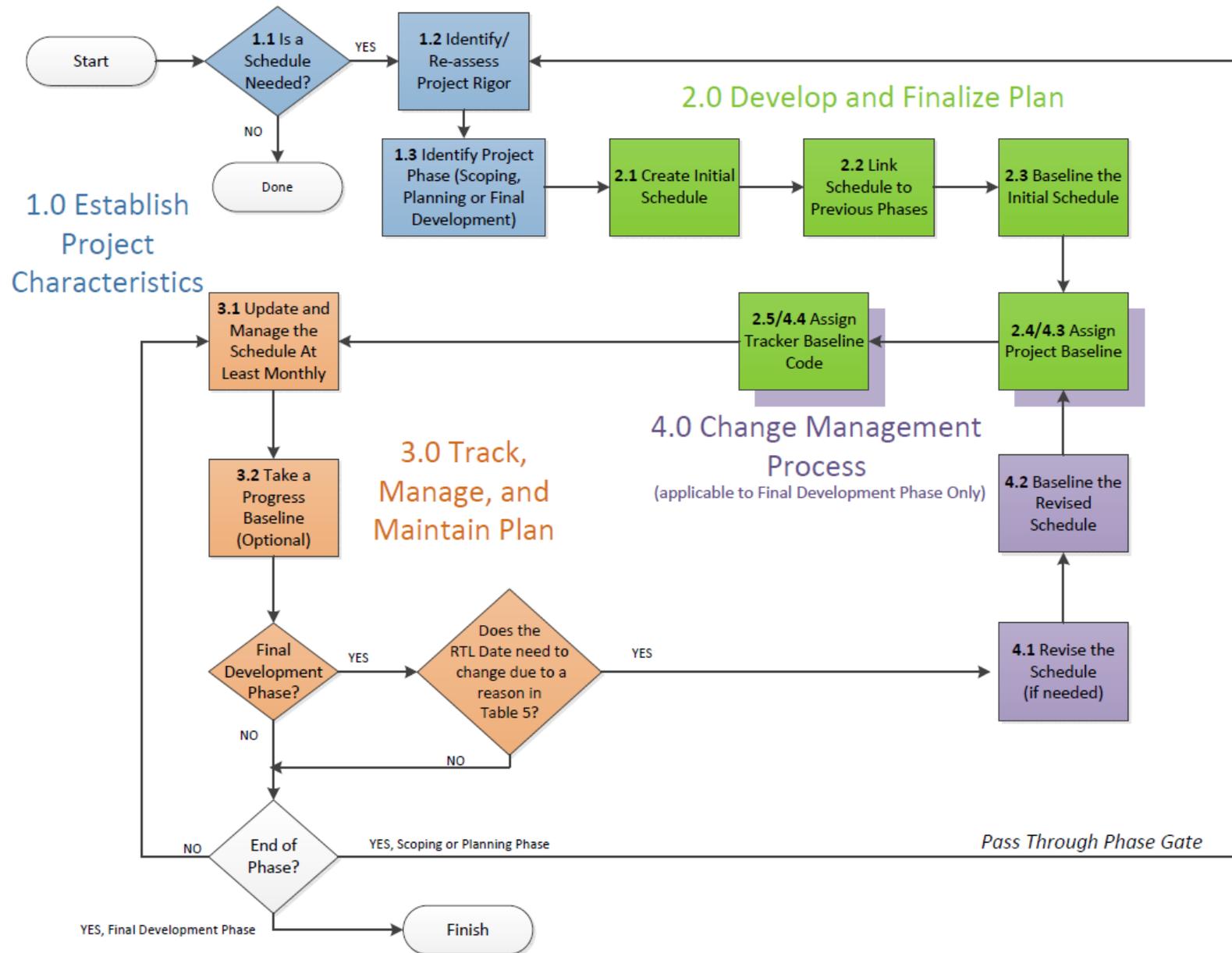
Also included are steps for monitoring and managing the schedule as well as change management guidance. *Figure 1. Schedule Guide Process Diagram* provides a flowchart walking through the process explained in this guidance document.

The schedule guidance is designed to align, where applicable, to the portfolio structure that includes the scoping, planning, and final development phases of project development. It is intended to support the overall scheduling process and associated data that is integral to the portfolio management tool.

Applying a consistent approach to schedule development and maintenance can improve the use of schedules and baselines for project management and portfolio management, as well as facilitate consistent and reliable internal and external reporting. As such, each process step discussed in this guide has relevance to project management, portfolio management, and reporting requirements. *Attachment A. Process Relevance to Management and Reporting* details these relevancies for each process step where applicable.

This document will be updated to align with other tools and supporting efforts as needed. For questions related to this guidance and the use of P6 to schedule your projects, please contact your Transportation Programs Division – Project and Portfolio Management (TPD-PPM) Field Agent or the PPM Help Desk at (512) 416-3333 or PPM_Helpdesk@txdot.gov.

Figure 1. Schedule Guide Process Diagram



1. ESTABLISH PROJECT CHARACTERISTICS

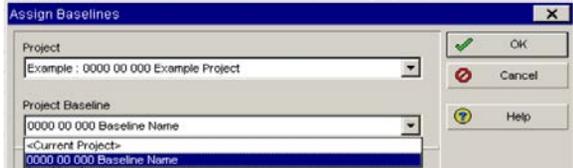
This step involves using project characteristics to determine if a schedule is needed. This step will also identify Project Rigor and Project Phase, which will be useful in developing a project schedule.

1.1 Determine Need for Schedule	Definition	Project Schedule – the tool that communicates work to be performed including Key Dates (milestones) as applicable, activity durations and relationships, and may or may not include resources and budgeted hours.
	Procedure	<p>1.1.1. Refer to <i>Figure 2. Project Schedule Decision Tree</i> (page 9) to determine if a project is expected to have a Schedule.</p> <p>1.1.2. A schedule is expected for the controlling CSJ (CCSJ) Project based on the outcome from the <i>Schedule Decision Tree</i> tool.</p> <p>1.1.3. A schedule can be optionally created for any subordinate CSJs if warranted to track the progress of the subordinate CSJs. If created, a CSJ schedule must be tracked and maintained for data to correctly populate the Portfolio Tool and Project Tracker milestones. If no CSJ schedule exists, data from the CCSJ schedule will be automatically populated for subordinate CSJ projects in those reporting tools.</p>
1.2 Identify / Re-assess Project Rigor	Definition	Project Rigor – a classification that considers project complexity, impacts, and risks.
	Procedure	1.2.1. Identify Rigor classification using <i>Table 1. Project Rigor Table</i> (page 11). Rigor is assigned on the P1C screen in DCIS.
1.3 Identify Project Phase	Definition	Project Phase – Reference <i>Figure 4. Project Development Process (Based on September 15, 2015 Workshop Results)</i> (page 12) for project phases.
	Procedure	1.3.1. Determine where the project currently is within the development process. Options include Project Scoping Phase, Project Planning Phase, and Final Development Phase.

2. DEVELOP AND FINALIZE THE WORK PLAN

This step outlines the procedures for creating a schedule, creating and assigning a baseline of the initial schedule, and setting the applicable P6 Tracker Baseline Code.

2.1 Create Initial Schedule	Definition	Initial Schedule – This is the first planned Project Schedule before work begins, per project phase. This represents the first schedule for a given phase based on current known and assumed factors.
	Procedure	<p>2.1.1. Create Initial Schedule according to <i>Attachment B. District Minimum Requirements for Project Schedules</i> (page 24). For convenience and consistency, templates with the minimum milestones and activities are available. Reference <i>Attachment C. Recommendations for Template Use</i> (page 26).</p> <p>2.1.2. Calculate the schedule to identify the critical path according to the activity durations and relationships.</p>

2.2 Link Schedule to Previous Phases	Definition	<p>Project Phase – Reference <i>Figure 4. Project Development Process (Based on September 15, 2015 Workshop Results)</i> (page 12) for project phases. There should only be one project schedule that ultimately includes all phases of the project, understanding that not all projects go through all three phases. In other words, there should not be a separate schedule for the Scoping, Planning, and Final Development phases, unless moving from one phase to the next creates projects with new CCSJs. Reference <i>Attachment D. Procedure for Linking P6 Project Schedules</i> (page 30).</p>
	Procedure	<p>2.2.1. In cases where moving from one phase to the next creates projects with new CCSJs and separate schedules, the schedules should be linked together by appropriate relationships between milestones to understand the full project lifecycle. Refer to <i>Table 2. Milestone Requirement & Baseline Management Matrix</i> (pages 13-15) for required milestones per phase.</p>
2.3 Baseline the Initial Schedule	Definition	<p>Baseline – a documented “snapshot” of the Project Schedule taken at a given point in time that records the conditions that exist at that given point. It is taken at any point within the project, as needed, for management purposes.</p> <p>Initial Baseline – Baseline taken at the beginning of any phase of the project (Project Scoping, Project Planning, Final Development), representing the accepted plan for a given project phase (see <i>Table 3. Initial Baselines on page 16</i>).</p>
	Procedure	<p>2.3.1. Take a baseline on the initial schedule and select the appropriate P6 Baseline Code and recommended baseline name (see <i>Table 3. Initial Baselines on page 16</i>) depending on Project Phase.</p>
2.4 Assign Project Baseline	Definition	<p>P6 Baseline Displays</p> <p><i>Project Baseline</i> – A baseline assigned to the unique field in P6 (see image below) that can be set to an existing baseline for a project. By default, P6 has the <Current Schedule> set as the Project Baseline. This should be updated from the default value by the project manager or appropriate controls staff for every project.</p> 
	Procedure	<p>2.4.1. Obtain TP&D Director or District Engineer Approval as appropriate.</p> <p>2.4.2. The project manager or appropriate controls staff should set the Project Baseline field to the Initial Baseline for the current phase. For projects in the Final Development phase this baseline will be used in calculations for Design on Time (DoT) reporting purposes, comparing the target Ready To Let (RTL) date to the actual RTL date. Refer to <i>Attachment E. Baseline Expectations by Phase</i> (page 35) for direction on when a Project Baseline is expected.</p>

<p>2.5 Assign Tracker Baseline Code</p>	<p>Definition</p>	<p>Tracker Baseline Code – A P6 project level code that identifies the baseline from which the Project Tracker Project Milestone Target Dates will be pulled from and displayed to the public.</p>
	<p>Procedure</p>	<p>2.5.1. Obtain TP&D Director or District Engineer Approval, as appropriate.</p> <hr/> <p>2.5.2. The Initial Baseline created in Step 2.3 should be assigned as the Tracker Baseline Code. Initial assignment and subsequent changes to this P6 code can be made by district users with the District Controls global security profile in P6.</p>

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3. TRACK, MAINTAIN, AND MANAGE THE WORK PLAN

This step includes monitoring and managing the project schedule by updating the schedule at least monthly. Taking Progress Baselines throughout the project is optional.

<p>3.1 Update and Manage the Schedule at least Monthly</p>	<p>Definition</p>	<p>Data Date – Date when the schedule or baseline was last updated.</p> <p>Schedule Update – Includes:</p> <ul style="list-style-type: none"> - progressing the data date; - updating actual progress; - updating start and finish dates; - updating remaining durations; - adding or removing activities as needed; - viewing log and correcting logic errors; and - recalculating the schedule to identify the critical path. <p>The last update supersedes the previous update. Schedule updates can be performed at any time, at a minimum once per month. Reference <i>Attachment B. District Minimum Requirements for Project Schedules</i> (page 24).</p> <p>Schedule Management – The project manager is responsible for managing the planned schedule and making adjustments to keep the project on track to meet the Finish or RTL date, depending on the project phase. Management of the schedule may result in shifting milestone dates, including the Finish or RTL dates.</p> <p>In some cases, the planned activities and resulting critical path can no longer be managed to meet the planned Finish or RTL date. For projects in the Scoping or Planning phase, the schedule should continue to be managed according to Step 3.1.</p> <p>For projects in the Final Development phase, if the change in the RTL date is a result of a reason code in <i>Table 5. Revised Baselines</i> (page 18), the Project Baseline assigned in Step 2.4 and Tracker Baseline Code assigned in Step 2.5 may be subject to an update. If one of the definitions for delay applies, proceed to Step 4 for Change Management. If the definitions in Table 5 do not apply, continue to manage the schedule according to Step 3.1.</p> <p>Schedule Management can also include changes to the schedule to reflect a decision to try to accelerate the entire project, affecting planned milestone dates, including Finish or RTL dates, depending on the phase. Managing the project with an accelerated schedule may result in planned and actual dates of the current schedule to be ahead of the planned milestone dates in the Project Baseline (Step 2.4/4.3). The actual RTL date may be ahead of the target RTL date and would be reflected as such in the DoT QC Tool. Also, the actual milestone dates, including RTL, may be ahead of the Target Dates, reported externally on Project Tracker.</p>
	<p>Procedure</p>	<p>3.1.1. Update the Project Schedule at least once per month.</p>

3.2 Take a Progress Baseline (Optional)	Definition	Progress Baseline – An optional Baseline recorded when a corresponding Milestone is achieved. See <i>Table 4. Commonly Used Progress Baselines</i> (page 17) for a list of these optional progress baselines. Note that a Progress Baseline can also be taken at any point, whether at a milestone or not.
	Procedure	3.2.1. Record a Progress Baseline, if needed (optional).

4. CHANGE MANAGEMENT (Final Development Phase Only)		
If the Work Plan needs to be changed, this step outlines procedures for taking a Revised Baseline and changing the Project Baseline or Tracker Baseline Code when approved.		
4.1 Revise the Schedule (if needed)	Definition	Revised Schedule – This schedule represents the revised work plan for a given phase based on current known and assumed factors resulting from changes in the RTL milestone date (due to managing the schedule in Step 3.1).
	Procedure	4.1.1 If necessary, revise current schedule activities, durations, resources, relationships, etc., to accurately represent the most current known work plan.
4.2 Baseline the Revised Schedule	Definition	Revised Baseline – Baseline taken to document an event, whether internal or external to TxDOT, that affects the Final Development RTL milestone date, as limited to the Change Codes in <i>Table 5. Revised Baselines</i> (page 18). <ul style="list-style-type: none"> a. Delay (includes work stoppage) b. Resume c. Acceleration
	Procedure	4.2.1. Obtain TP&D Director or District Engineer Approval, as appropriate. 4.2.2. Upon approval, the project manager can create or coordinate with District Controls personnel to create a Revised Baseline.
4.3 Assign Project Baseline	Procedure	4.3.1. The Project Baseline field is set to the Revised Baseline. This establishes a new target RTL date that the actual RTL date will be compared to in the DoT QC Tool.
4.4. Assign the Tracker Baseline Code	Procedure	4.4.1. Assign the Revised Baseline created in Step 4.2.2 as the Tracker Baseline Code. This will enable the Project Tracker Project Milestone Target Dates to be pulled from the Revised Baseline and projected to the public. Changes to this P6 code can be made by district users with the District Controls global security profile in P6.

Figure 2. Project Schedule Decision Tree

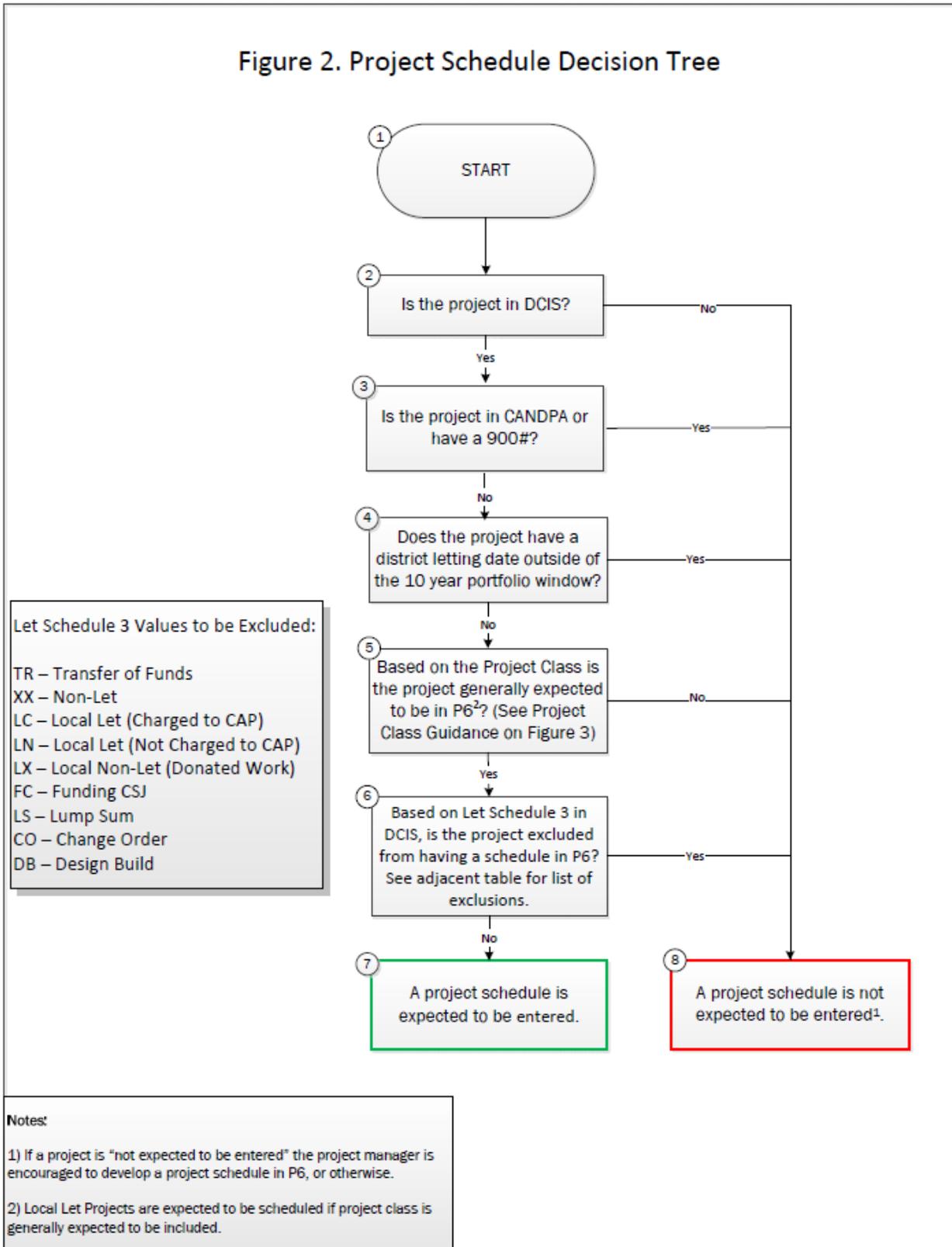


Figure 3. Scheduling Expectations by Project Class

Generally Expected to Schedule		Not Expected to Schedule	
BCF	Border Crossing Facility	BIK	Bicycle Infrastructure Improvements
BMN	Bridge Maintenance (if Cat 6 funded)	BMN	Bridge Maintenance (if not Cat 6 funded)
BR	Bridge Replacement	CTM	Corridor Traffic Management
BWR	Bridge Widening or Rehabilitation	ER	Emergency Relief Projects
CNF	Convert Non-Freeway To Freeway	FBO	Ferry Boat
CSD	Culvert & Storm Drainage Work	ENV	Environmental Work Activities
FOI	Freeway Operational Improvements	ROW	Right of Way
FS	Feasibility Studies	TNR	Transportation Non-Roadway
INC	Interchange (New or Reconstructed)	UTL	Utility Adjustments
IOI	Intersection & Operational Improvements		
LSE	Landscape & Scenic Enhancement		
NLF	New Location Freeway		
NNF	New Location Non-Freeway		
OV	Overlay		
PE	Preliminary Engineering		
PED	Pedestrian, Sidewalks and Curb Ramps		
RER	Rehabilitation of Existing Road		
RES	Restoration		
RH	Rail Hwy Crossing Signals/Structures		
RL	Rail Line		
SC	Seal Coat		
SFT	Safety Improvement Projects		
SP2	Super-2 Highway		
SRA	Safety Rest Area		
TCD	Traffic Control Devices		
TPW	Texas Park and Wildlife		
WF	Widen Freeway		
WNF	Widen Non-Freeway		

Table 1. Project Rigor Table

		ROW/Utility Impact ²		
		High potential for delay to Letting Date	Some potential to delay Letting Date	Little to No potential delay to Letting Date
Environmental ¹ Document	EIS (Environmental Impact Statement)	High Rigor ³	High Rigor ³	High Rigor ³
	EA (Environmental Assessment)	High Rigor ³	Medium Rigor	Medium Rigor
	CE (Categorical Exclusion)	High Rigor ³	Medium Rigor	Low Rigor

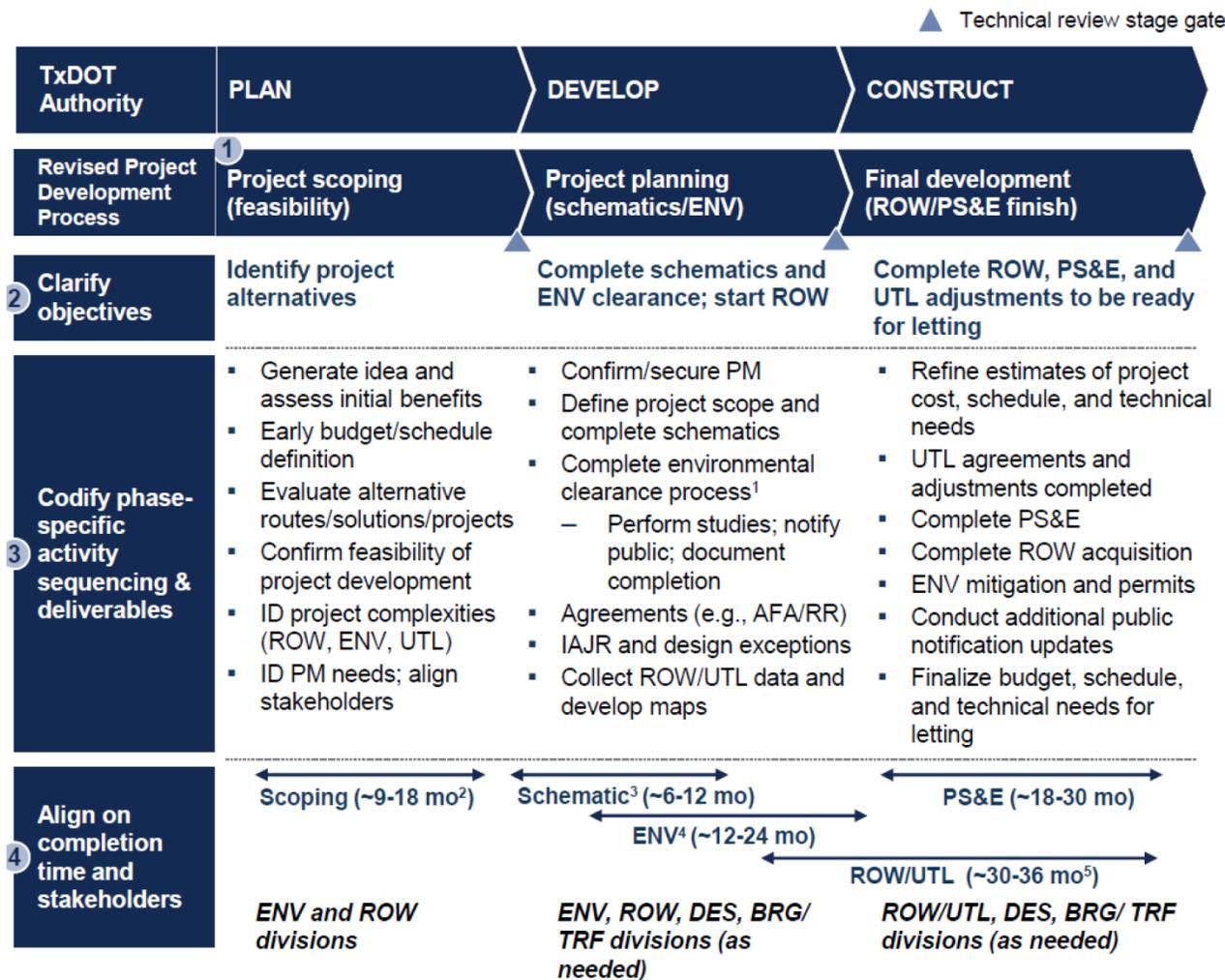
Project Rigor is a classification that considers project complexity, impacts, and risks. This table is provided for guidance only.

¹ Environmental factor may be ignored if the NEPA process has been completed.

² ROW and Utility Impact should be determined by District and ROW Staff. High potential for delay should be confirmed by the District Engineer or designated staff.

³ High Rigor projects typically have high public or political interest and are generally greater than \$25 million in construction cost; however, cost alone should not be the determining factor.

Figure 4. Project Development Process (Based on September 15, 2015 Workshop Results)



ENV = environmental; ROW = right of way; PS&E = plans, specifications, and estimates; UTL = utilities; ID = identify; PM = project manager; AFA = advanced funding agreement; RR = railroad; IAJR = interstate access justification report; BRG = Bridge; TRF = Traffic Operations.

Notes:

¹ Complete environmental review to the fullest extent possible.

² Per TPP estimates.

³ Per TPP estimates.

⁴ Common range across environmental review.

⁵ Range based on right of way need for projects with different levels of complexity.

Table 2. Milestone Requirements and Baseline Management Matrix

Project Phase	Key Dates (Milestones)		Milestone Definition	Minimum Milestones Required in Schedule (Provided in available P6 templates)				Further Information on Milestone	Project Tracker Milestones	Milestone Pulled into District Portfolio	P6 Baseline Type	Baseline Code	Baseline Required?
				Project Starts in Scoping Phase	Project Starts in Planning Phase	Project Starts in Final Development Phase							
	Low Rigor	Med/High Rigor											
Activity ID	Activity Name												
Project Scoping	SCP000	Project Scoping Start Milestone	Any resources have begun working on the Scoping Phase of a project (Feasibility Study).	✓				PDP Manual, Chapter 1, Section 1	No ¹	No ²	Initial	S1	Yes (if applicable)
Project Scoping	SCP100	Project Scoping Finish Milestone	Scoping Phase is complete.	✓				-	No ¹	No ²	Progress	S2	No
Project Planning	PLN000	Project Planning Start Milestone	Any resources have begun working on the Planning Phase of a project.		✓			PDP Manual, Chapter 1, Section 3	No ¹	No ²	Initial	P1	Yes (if applicable)
Project Planning	SCHALT	Preferred Alternative Selected Milestone	After all alternative solutions have been studied, compared, and ranked, a preferred alternative is selected.		✓			PDP Manual, Chapter 2, Section 4	No ¹	No ²	Progress	-	No
Project Planning	SCHAPP	Approved Schematic Milestone	Schematic has been approved by the applicable entities.		✓			PDP Manual, Chapter 2, Sections 5 & 7; PS&E Prep Manual Chapter 1, Section 3	No ¹	No ²	Progress	-	No
Project Planning	PLN100	Project Planning Finish Milestone	Planning Phase is 100% complete.		✓			-	No ¹	No ²	Progress	P3	No
Project Planning / Final Development	ENVNEPA	Receive ENV NEPA Clearance	Corresponds to when a project is issued a CE determination, FONSI, or ROD in accordance with State or Federal requirements, and NEPA Clearance has been achieved.		✓	✓	✓	PDP Manual, Chapter 3	No ¹	Yes	Progress	18	No
Project Planning / Final Development	ROWSURV	ROW Survey & Parcel Legal Descriptions Milestone	Corresponds to when all activities related to developing the ROW Map and Parcel Legal Descriptions/Plats have been completed such that the ROW acquisition process can continue.		✓		✓	PDP Manual, Chapter 4, Section 2	No ¹	No ²	Progress	-	No

¹These milestones are not currently shown in Project Tracker; however they may be shown in the future.

²These milestones are not currently pulled into the District Portfolio; however they may be in the future.

³These milestones are required if this type of work is to be completed on the project, otherwise remove milestone.

⁴These milestones are automatically set by Site Manager when the project enters Construction and are used in the P6 Auto Archiving program to archive completed schedules.

Table 2. Milestone Requirements and Baseline Management Matrix

Project Phase	Key Dates (Milestones)		Milestone Definition	Minimum Milestones Required in Schedule (Provided in available P6 templates)				Further Information on Milestone	Project Tracker Milestones	Milestone Pulled into District Portfolio	P6 Baseline Type	Baseline Code	Baseline Required?
				Project Starts in Scoping Phase	Project Starts in Planning Phase	Project Starts in Final Development Phase							
	Low Rigor	Med/High Rigor											
Activity ID	Activity Name												
Final Development	A1000	PS&E Start Milestone	Any resources have begun working on the Final Development Phase of a project.		✓	✓	✓	PDP Manual, Chapter 5; PS&E Prep Manual	Start Design	Yes	Initial	1	Yes
Final Development	DES030	30% Complete Milestone	30% PS&E completion as defined per project. For simple paving projects this milestone may not be applicable.		✓ ³		✓	PEPS Selection Manual, Chapter 6, Section 7	Design 30% Complete	Yes	Progress	2	No
Final Development	DES060	60% Complete Milestone	60% PS&E completion as defined per project. For simple paving projects this milestone may not be applicable.		✓ ³		✓	PEPS Selection Manual, Chapter 6, Section 7	Design 60% Complete	Yes	Progress	3	No
Final Development	DES100	100% Complete Milestone	100% PS&E completed with construction details fully developed and drafted including the development of specifications needed for the project.		✓	✓	✓	-	Design 100% Complete	Yes	Progress	4	No
Final Development	UTLCERT	Utility Clearance Certification Milestone	The certification describes the status of the utility adjustment process.			✓	✓	PS&E Prep Manual, Chapter 5, Section 3	Utility Coordination	No	Progress	-	No
Final Development	ROWCERT	Right-of-Way Certification Milestone	The certification describes the status of the right-of-way acquisition process.			✓	✓	PS&E Prep Manual, Chapter 5, Section 3	No ¹	No	Progress	-	No
Final Development	ROWENCCERT	ROW Encroachment Certification Milestone	The certification describes the status of any Right-of-Way Encroachments on the project.			✓	✓	PS&E Prep Manual, Chapter 5, Section 3	Right of Way Coordination	No	Progress	-	No
Final Development	ROWRELCERT	ROW Relocation Advisory Assistance Certification Milestone	If any right-of-way was acquired, certification of proper relocation assistance is necessary.			✓	✓	PS&E Prep Manual, Chapter 5, Section 3	No ¹	No	Progress	-	No

¹These milestones are not currently shown in Project Tracker; however they may be shown in the future.

²These milestone are not currently pulled into the District Portfolio; however they may be in the future.

³These milestones are required if this type of work is to be completed on the project, otherwise remove milestone.

⁴These milestones are automatically set by Site Manager when the project enters Construction and are used in the P6 Auto Archiving program to archive completed schedules.

Table 2. Milestone Requirements and Baseline Management Matrix

Project Phase	Key Dates (Milestones)		Milestone Definition	Minimum Milestones Required in Schedule (Provided in available P6 templates)				Further Information on Milestone	Project Tracker Milestones	Milestone Pulled into District Portfolio	P6 Baseline Type	Baseline Code	Baseline Required?
				Project Starts in Scoping Phase	Project Starts in Planning Phase	Project Starts in Final Development Phase							
	Low Rigor	Med/High Rigor											
Activity ID	Activity Name												
Final Development	RRCERT	RR Certification Milestone	The certification describes the status of the coordination with railroad companies when railroad ROW is within the project limits, a railroad crossing (advance warning signs within the project limits) is near the project limits or parallels the project, a traffic signal is or will be linked to railroad signal devices, and the traffic control plan will influence a railroad crossing.		✓	✓	✓	PS&E Prep Manual, Chapter 5, Section 3	No ¹	No	Progress	-	No
Final Development	ENVCLR	Environmental Clearance for Letting Milestone	This is environmental clearance for letting and corresponds to when all obligations related to ENV Clearance have been met and a project is ready to let for construction.		✓	✓	✓	PDP Manual, Chapter 3, Section 5	Environmental Clearance	Yes	Progress	5	No
Final Development	ROW	ROW Possessed Milestone	Corresponds to when all ROW parcels have been possessed for construction.		✓ ³		✓ ³	-	No	Yes	Progress	6	No
Final Development	UTL	Utilities Adjusted Milestone	Corresponds to when all utilities have been cleared for construction.		✓ ³		✓ ³	-	No	Yes	Progress	7	No
Final Development	RTL1000	Ready to Let Milestone	Based on current TxDOT definition.		✓	✓	✓	Ready to Let (RTL) Definition for Construction Projects Memo	Project Ready to Bid	Yes	Progress	13	No
Post Let	ZAWARD ⁴	Commission Award of Contract	Commission Award of Contract			✓	✓	PDP Manual, Chapter 6, Section 1	No	No	Progress	-	No
Post Let	ZCONBEG ⁴	Begin Construction	Construction has begun			✓	✓	-	No	No	Progress	-	No
Post Let	ZCONEND ⁴	End Construction	Construction is complete - based on work accepted date			✓	✓	-	No	No	Progress	-	No

¹These milestones are not currently shown in Project Tracker; however they may be shown in the future.

²These milestone are not currently pulled into the District Portfolio; however they may be in the future.

³These milestones are required if this type of work is to be completed on the project, otherwise remove milestone.

⁴These milestones are automatically set by Site Manager when the project enters Construction and are used in the P6 Auto Archiving program to archive completed schedules.

Table 3. Initial Baselines

<i>P6 Code</i>	<i>Project Phase</i>	<i>Baseline Name</i>	<i>Corresponding Activity ID</i>
S1	Project Scoping	Project Feasibility Start	SCP000
P1	Project Planning	Project Schematic and ENV Start	PLN000
01	Final Development	PS&E Start	A1000

Table 4. Commonly Used Progress Baselines (Optional)

<i>P6 Code</i>	<i>Project Phase</i>	<i>Baseline Name</i>	<i>Corresponding Activity ID</i>
S2	Project Scoping	Project Feasibility Finish Milestone	SCP100
P2	Project Planning	50% Project Schematic and ENV Milestone	PLN050
P3	Project Planning	100% Project Schematic and ENV Milestone	PLN100
18	Project Planning or Final Development	Receive ENV NEPA Clearance	ENVNEPA
02	Final Development	PS&E 30% Complete Milestone	DES030
03	Final Development	PS&E 60% Complete Milestone	DES060
04	Final Development	PS&E 100% Complete Milestone	DES100
05	Final Development	Environmental Clearance for Letting	ENVCLR
06	Final Development	ROW Acquisition Complete	ROW
07	Final Development	Utilities Coordination Complete	UTL
13	Final Development	Ready to Let	RTL1000

Table 5. Revised Baselines for Final Development Phase

P6 Code	Baseline Name	Definition
D1	Delay: Insufficient Funding	Due to funding constraints or changes in project priority, PS&E work is being delayed or stopped until the funding or priorities have been addressed, delaying the RTL date.
D2	Delay: Unexpected ENV Conflict	Due to an unexpected environmental conflict, PS&E work is delayed or stopped until additional environmental clearances are obtained or addressed, delaying the RTL date.
D3	Delay: Major Project Scope Revision	Due to changes in the project's scope the entire project, or portions there-of, require additional work or rework, which will delay the RTL date
D4	Delay: Unclear ROW	Inability to obtain right-of-way access has delayed the RTL date.
D5	Delay: Major Utility Conflicts	Due to necessary adjustments to utilities, the RTL date is delayed. This may include a delay in moving utilities or inability to relocate utilities because of environmental concerns.
D6	Delay: Insufficient Resources	Due to the unavailability of personnel to develop PS&E, the RTL date is delayed
D7	Delay: Incomplete Local Agreements or Failure of Local Entity to meet commitments	Due to temporary inability of local entity to satisfy agreement commitments, the RTL date is delayed.
D8	Delay: Incomplete Planning Documents	Due to the project not being in the appropriate planning document, the RTL date is delayed.
D9	Delay: Litigation	Due to pending litigation, the RTL date is delayed.
D10	Delay: Change in Project Priority	Projects are prioritized based on several factors, including projected traffic volume, safety and congestion. Because of district/local/state needs, projects are continually reevaluated, resulting in the RTL date being delayed.
A1	Acceleration: Additional Funding	Due to additional funding that has been awarded to TxDOT by the federal or state government, the project is accelerated. A project may also have funds transferred from a delayed or canceled project.
A2	Acceleration: Change in Project Priority	Projects are prioritized based on several factors, including projected traffic volume, safety and congestion. The project was re-evaluated and accelerated due to reasons internal to TxDOT (i.e. District, TxDOT Administration, Texas Transportation Commission). Examples of this could be improved project delivery processes, failure of road/bridge infrastructure or performance measures.
A3	Acceleration: Change in Project Scope	Due to a change in project scope, the project is accelerated. Generally, a project is accelerated because aspects of construction are removed. This could include shortening project limits due to issues with Right of Way or Environmental, or eliminating a bridge, for example.
AL1	Acceleration: Additional Funding (Local)	Due to additional funding that has been awarded to TxDOT by a local government, the project is accelerated.
AL2	Acceleration: Change in Project Priority (Local)	Projects are prioritized based on several factors, including projected traffic volume, safety and congestion. The project was re-evaluated and accelerated at the request of local entities (i.e., City, County, Metropolitan Planning Organizations).
AL3	Acceleration: Change in Project Scope (Local)	Due to a change in scope at the request of a local entity, the project is accelerated. Generally the project is accelerated because aspects of construction are removed.

Attachment A. Process Relevance to Management and Reporting

Process Step	Project Management	Portfolio Management	Reporting Requirements
<p>Step 1.1 Determine Need for Schedule</p>	<p>Having a schedule is a <u>good project management practice</u>. Although certain categories of projects are not expected to have a schedule in the scheduling tool, consider the benefits of maintaining even a basic schedule for each project to manage more from a proactive, rather than reactive, footing.</p>	<p>Decision makers at various levels rely on consistent use and projection of key milestones for planning, prioritization, and funding decisions from an agency perspective. The value of the portfolio, for decision making purposes, is <u>dependent on the quality of the management and status of each project</u>, as represented by the schedule data that is pulled into the portfolio.</p>	<p>The two primary reporting processes are the annual Design on Time (DoT) percentage and Project Tracker.</p>
<p>Step 1.2 Identify/Re-Assess Project Rigor</p>	<p>It's important for a project manager to make an accurate assessment of project rigor. A project's <u>rigor is directly related to the level of risk associated with the project</u>. Identifying and evaluating the risks will support the development of a more realistic schedule and management approach to the project.</p>	<p>Similar to project management, an accurate <u>assessment of risk and rigor for a project allows for adequate awareness of the project's level of predictability</u> and the potential effects it might have to portfolio management decisions.</p>	
<p>Step 1.3 Identify Project Phase</p>	<p>It's important to identify the phase in order to <u>identify relevant milestones and key dates</u>. It's also important for the Project Manager to consider and <u>manage the project from a broader perspective than a single phase</u>.</p>	<p>The focus is shifting from letting to Ready to let (RTL) and the phase gates along the path to get there. The <u>broader portfolio perspective captures the volume and status of projects in each phase</u> in order to evaluate overall portfolio health.</p>	<p>The agency <u>DoT percentage</u>, reported annually, is based on the actual RTL status at the end of <u>the Final Development phase</u>. Project Tracker shows a map of all projects in all phases, but shows target and actual dates for the Final Development Phase only. Expanding Tracker to include other phases is a possibility for improved visibility.</p>

Attachment A. Process Relevance to Management and Reporting

Process Step	Project Management	Portfolio Management	Reporting Requirements
<p>Step 2.1 Create an Initial Schedule (per phase)</p>	<p>For the level of detail needed, the PM ensures key milestones and activities are identified with <u>realistic decisions on durations and accurate relationships. The critical path is calculated,</u> which should be a basis for how the PM manages the project team.</p>	<p><u>An initial schedule is expected for each phase.</u> This can provide additional perspective for managing expectations of how and at what rate a project is expected to progress from phase gate to phase gate.</p> <p>It's also important to <u>ensure the expected milestones are included to support the data pulls for the portfolio tool.</u></p>	<p>Important to be thoughtful about decisions that will affect the <u>planned milestone dates,</u> including the Ready to Let (RTL) date.</p>
<p>Step 2.2 Link Schedule to Previous Phases</p>	<p>Maintain perspective on the project as <u>being more than one phase.</u> Supports maturing the schedule into subsequent phases for <u>improved management perspective.</u></p>	<p>Supports a comprehensive consideration of the project from one phase to the next, through phase gates, to <u>align with the expanded portfolio perspective.</u></p>	
<p>Step 2.3 Baseline the Schedule.</p>	<p><u>Snapshot of the initial plan,</u> per phase, for future reference and comparison by the PM.</p>		<p><u>Necessary</u> to assign as Project Baseline and assign Tracker Baseline Code, in subsequent steps, to <u>support required reporting.</u></p>
<p>Step 2.4 Assign Project Baseline</p>	<p><u>Provides a target</u> upon which a Project Manager <u>can evaluate progress</u> and make judgements on whether the project is on track or not.</p>		<p>The planned RTL date from this baseline, for the <u>Final Development phase,</u> will be what the actual RTL date is compared to for annual Design on Time (DoT) percentage reporting. <u>If not assigned, the current schedule is used</u> in the calculation, which may lead to an incorrect DoT assessment, and the department is subject to criticism by the LBB for <u>inaccurate reporting.</u></p>

Attachment A. Process Relevance to Management and Reporting

Process Step	Project Management	Portfolio Management	Reporting Requirements
<p>Step 2.5 Assign Tracker Code</p>	<p>Important to understand what it's used for and the effect of assigning or not assigning on the integrity of department-wide reporting requirements.</p>		<p>For the Final Development phase, the target dates for key milestones in the assigned baseline tracker code are published on Project Tracker. If not assigned, target dates are not published and TxDOT is subject to criticism by the public and the legislature for incomplete reporting.</p>
<p>Step 3.1 Update the Schedule at least Monthly</p>	<p>The PM is responsible for maintaining the schedule, reviewing the critical path, and managing the project team to ensure adequate coordination and communication to support successful progression, decision making, and ultimate delivery. Refer to the Schedule Guide for additional explanation.</p>	<p>Keeping the schedule up to date ensures the project is being accurately reflected in the portfolio tool to support decision making from a portfolio perspective.</p>	<p>Updating the schedule allows actual dates to be pulled to Tracker for applicable milestones.</p> <p>Actualizing the RTL date for Final Development enables the project status to be included in the DoT calculation. If not properly maintained, the department is subject to criticism for incomplete reporting.</p>
<p>Step 3.2 Progress Baselines (Optional)</p>	<p>Records a snapshot for future reference and comparison by the PM.</p>		

Attachment A. Process Relevance to Management and Reporting

Process Step	Project Management	Portfolio Management	Reporting Requirements
<p>Step 4.1 Revise the Schedule (if needed)</p>	<p>In response to the results of a schedule update in step 3.1, and <u>in accordance with acceptable acceleration and delay codes</u>, the PM may want to revise the schedule to reflect management decisions to adjust activities and milestones in response to the situation. This is an <u>opportunity to revise the future target dates</u> to align with expected outcomes which could improve reporting status.</p>	<p>Revising the schedule, when applicable in Final Development, <u>ensures that changes to key milestones are being accurately reflected in the portfolio tool</u> to support decision making from a portfolio perspective. This can be for accelerated or delayed projects.</p>	<p><u>Provides a more accurate schedule</u> that can be baselined for use in reassigning the <u>Project Baseline</u> and <u>Tracker Baseline Code</u> in subsequent steps which can affect status ultimately reported.</p>
<p>Step 4.2 Baseline the Revised Schedule</p>	<p><u>Snapshot of the</u> revised plan for future reference and comparison by the PM.</p>		<p><u>Necessary to replace the Project Baseline</u> from the Initial Baseline to the revised baseline and update the assigned Tracker Baseline Code, in subsequent steps, to <u>support improved reporting</u>.</p>

Attachment A. Process Relevance to Management and Reporting

Process Step	Project Management	Portfolio Management	Reporting Requirements
<p>Step 4.3 Assign Project Baseline</p>	<p>Similar to Step 2.4, the revised Project Baseline provides an updated target upon which a Project Manager can evaluate progress and make judgements on whether the project is on track or not.</p>		<p>The planned RTL date from this Revised Baseline, for the Final Development phase, will be what the actual RTL date is compared to for annual Design on Time (DoT) percentage reporting. If not assigned, the planned RTL date from the Initial Baseline, as assigned in step 2.3 will be compared to the actual RTL for reporting purposes.</p>
<p>Step 4.4 Assign Tracker Code</p>			<p>Similar to Step 2.5, for the Final Development phase, the target dates for key milestones in the assigned revised baseline are published on Project Tracker. Revising the target dates may help in managing the expectations of the public and other external stakeholders.</p>

Attachment B: District Minimum Requirements for Project Schedules

1. Refer to the *Schedule Guide for TxDOT Projects* and *Figure 1. Project Schedule Decision Tree* to determine if a project schedule is expected to be entered into P6.
2. All project schedules are required to have Key Dates (Milestones), depending on the rigor and phase of the project (reference *Table 2. Milestones Requirements & Baseline Management Matrix*). For convenience, the following templates containing these Key Dates are provided:
 - a. Scoping (Feasibility)
 - b. Planning & Final Development (Low Rigor) – Typically used for Low Rigor projects with a short Final Development phase duration, generally six months or less.
 - c. Planning & Final Development (Medium/High Rigor)

Using these templates is not a requirement, as long as the schedule contains the required Key Dates (Milestones), but it is strongly recommended to avoid mistakes in setting up the required milestones.

3. All project schedules are expected to have at least one activity to represent the work associated with each required milestone as identified in Requirement 2 and valid relationships between activities and required milestones, with no open ends.
4. There should only be one project schedule that ultimately includes all phases of the project. In other words, there should not be a separate schedule for the Scoping, Planning, and Final Development phases, unless moving from one phase to the next creates projects with separate CSJs. In those cases, the phases represented in the separate schedules should be linked together by relationships to understand the full project lifecycle.
5. Project schedules are expected to have appropriate Project Codes assigned when the schedule is created. The Project Codes should be updated as needed. These Project Codes include:

Project Code	Appropriate Values
Schematic Required	Yes, No
ROW Needed	Yes, No
UTL Required	Yes, No
AFA Needed	Yes, No
RR Coordination Needed	Yes, No *The source of this value is DCIS and is automatically assigned in P6
PSE-Percent Comp	0% - 100% in increments of 5%

Attachment B: District Minimum Requirements for Project Schedules

6. Project schedules are expected to have the name of the Project Manager assigned to manage to the project entered into the *Project Manager User Defined Field* (UDF). If a Project Manager has yet to be assigned for a project, enter TBD in the UDF text field.
7. Project schedules are expected to have an Initial Baseline, per phase, for all projects with a District Estimated Let Date (DCIS) within the first four years of the ten year portfolio window and for any project that is actively being worked on.
8. The *Project Baseline* field in P6 should be set to the district approved (Initial or Revised) baseline, per phase, for all projects with a District Estimated Let Date (DCIS) within the first four years of the ten year portfolio window and for any project that is actively being worked on. By default, P6 has the *Current Schedule* set as the *Project Baseline*. This field should be updated from the default value by the project manager or appropriate controls staff.
9. The *Tracker Baseline* code in P6 must be assigned for all projects with a District Estimated Let Date (DCIS) within the first four years of the ten year portfolio window and for any project that is actively being worked on. Changes to this P6 code can be made by district users with the District Controls global security profile in P6.
10. All project schedules with a P6 Project Status of Active are expected to be updated (Data Date) at least once a month.
11. All project schedules should be set to the appropriate P6 Project Status according to the following P6 Project Status Chart:

P6 PROJECT STATUS	WHEN TO USE
WHAT-IF	For projects being created or analyzed before establishing a more permanent schedule. A What-If status can also be assigned to a copied project for modification or analysis.
PLANNED	For projects with future start dates. Work has not yet begun.
ACTIVE	For projects that are actively being worked on now. The activities are recommended to be progressed (timesheets or manually) on a regular basis, but not less than once a month.
INACTIVE*	When work stops on an Active project, and it is not anticipated to start again for an extended period of time. This could be due a delay in funding, environmental issues, district priorities, etc.
	Also, the week after a project Lets, it should be changed to Inactive status once all activities have been marked as finished.

*Inactive Status in P6 should not be confused with FHWA, FIN or any other definition of inactive. The term is built into P6 and cannot be changed.

Attachment C: Recommendations for P6 Template Use

Three P6 global templates have been created to aid in the development of schedules. These templates contain the required milestones for each phase and are located in the District Templates Node of P6. They include:

1. Scoping (Feasibility)
2. Planning & Final Development (Low Rigor) – Typically used for Low Rigor projects with a short Final Development phase duration, generally six months or less.
3. Planning & Final Development (Medium/High Rigor)

The following recommendations provide direction for use of these templates:

Template Selection:

- The appropriate template should be selected that corresponds to the project rigor and development phase in which the schedule is being created. Ultimately there should only be one schedule that includes all phases of the project, understanding that not all projects go through all three phases.

Key Dates/Activities:

- Each template includes the Key Dates (milestones) that are expected to be shown in its respective phase.
- Each template contains at least one activity to represent the work to complete each required milestones.
- There are no durations for these activities and applicable durations should be updated for each schedule.
- Additional activities and appropriate relationships may be added as needed.

Activity layouts for the P6 global templates are shown in the following pages. See the templates in P6 for more details and relationships.

Attachment C: Recommendations for P6 Template Use

Scoping (Feasibility) Template

Project Scoping (Feasibility) Template		Classic Schedule Layout		07-Jun-20
Activity ID	Activity Name	Predecessors	Successors	Original Duration
Project Scoping (Feasibility) Template				1d
KEY DATES				1d
SCP000	Project Scoping Start Milestone		F1000	0d
SCP100	Project Scoping Finish Milestone	F1000		0d
FEASIBILITY				1d
F1000	Scoping (Feasibility) Work	SCP000	SCP100	1d

Attachment C: Recommendations for P6 Template Use

Planning & Final Development (Low Rigor) Template

Project Schedule Low Rigor Template - Planning Final		Classic Schedule Layout		29-Aug-2017 1
Activity ID	Activity Name	Predecessors	Successors	Original Duration
Project Schedule Low Rigor Template - Planning & Final Development				759d
KEY DATES				759d
Scoping				0d
Planning Milestones				4d
ENVNEPA	Receive ENV NEPA Clearance Milestone	E1000, P1010, P1002, PLN000	PLN100, ENVCLR, E1001, RTL1000	0d
PLN000	Project Planning Start Milestone		ROWCERT, P1000, P1002, U1000, ENV	0d
PLN100	Project Planning Finish Milestone	ENVNEPA, SCHAPP, P1011, R1000, U1000, PL	A1000	0d
SCHAPP	Approved Schematic Milestone	P1008, P1004, PLN000	PLN100, P1011, P1010	0d
Final Development (PS&E) Milestones				759d
A1000	Start PS&E Milestone	PLN100	RRCERT, ENVCLR, F1005	0d
DES100	PS&E 100% Complete Milestone	F1006	F1007	0d
ENVCLR	Environmental Clearance	ENVNEPA, E1001, A1000	RTL1000, E1002, L1000	0d
ROWACQCERT	ROW Acquisition Certification Milestone	R1000	L1000	0d
ROWCERT	Right-of-Way Certification Milestone	PLN000	L1000	0d
ROWENCERT	ROW Encroachment Certification Milestone	R1000	L1000	4d
ROWRELCERT	ROW Relocation Certification Milestone	R1000	L1000	0d
RRCERT	Railroad Certification Milestone	A1000, PLN000	L1000	0d
RTL1000	Ready to Let Milestone	UTLCERT, ENVCLR, F1007, P1000, ENVNEPA	L1001	0d
UTLCERT	Utility Clearance Certification	U1000, PLN000	RTL1000	0d
ZAWARD	Commission Award of Contract	L1001	ZCONBEG	0d
ZCONBEG	Begin Construction	ZAWARD	ZCONEND, CON1000	0d
ZCONEND	End Construction	ZCONBEG, CON1000		0d
FEASIBILITY				0d
Planning Activities				9d
PROJECT DEFINITION				4d
P1000	Prepare Project Agreements - AFA	PLN000	RTL1000	1d
P1002	Request Traffic Analysis	PLN000	ENVNEPA	1d
P1004	Prepare for and Conduct Public Meeting	PLN000	P1008, E1000, R1000, SCHAPP	1d
P1008	Schematic Design and Approval Process	P1004, PLN000	SCHAPP	1d
P1010	Prepare and Conduct Public Hearing	SCHAPP	ENVNEPA	1d
P1011	Submit to DES/FHWA for Approval	SCHAPP	PLN100	1d
ENVIRONMENTAL				7d
E1000	Preparation of NEPA Environmental Process (EIS, EA)	P1004, PLN000	ENVNEPA	1d
E1001	Prepare Environmental Clearance Documentation	ENVNEPA	ENVCLR	1d
E1002	Environmental Certification Process	ENVCLR	L1000	1d
RIGHT-OF-WAY				1d
R1000	ROW Certification Process	P1004, PLN000	PLN100, ROWACQCERT, ROWRELCERT	1d
UTL				1d
U1000	UTL Clearance Certification Process	PLN000	PLN100, UTLCERT	1d
Final Development (PS&E) Activities				3d
PS&E				3d
F1005	Prepare 100% PS&E	A1000	F1006	1d
F1006	Review 100% PS&E	F1005	DES100	1d
F1007	Conduct Final PS&E Review	DES100	RTL1000	1d
ENVIRONMENTAL				0d
RIGHT-OF-WAY				0d
UTL				0d
LETTING				746d
L1000	Project Certification Lag (5 months)	ROWCERT, RRCERT, ROWRELCERT, ROWA	L1001	1d
L1001	Perform District Letting Process	L1000, RTL1000	ZAWARD	1d
CONSTRUCTION				4d
CON1000	Construct Project (Actual Start & Finish Dates set by Site Manager)	ZCONBEG	ZCONEND	4d

Attachment C: Recommendations for P6 Template Use

Planning & Final Development (Medium/High Rigor) Template

Project Schedule Med/High Rigor Template - Planning Final		Classic Schedule Layout		29-Aug-2017 15
Activity ID	Activity Name	Predecessors	Successors	Original Duration
Project Schedule Med/High Rigor Template - Planning & Final Development				762d
KEY DATES				762d
Planning Milestones				4d
ENWNEPA	Receive ENW NEPA Clearance Milestone	U1001, U1003, U1000, U1002, R1000, P1002,	E1001, ENWCLR, R1002, PLN100	0d
PLN000	Project Planning Start Milestone		P1001, U1001, P1003, U1002, U1000, R	0d
PLN100	Project Planning Finish Milestone	P1011, P1009, SCHAPP, ROWSURV, ENWNEP	A1000	0d
ROWSURV	ROW Survey & Parcel Legal Descriptions	R1001	ROWRELCERT, ROWACQCERT, R100	0d
SCHALT	Preferred/Alternative Selected Milestone	P1001, P1004, P1006, U1000, P1005	R1001, E1000, P1009, P1007, P1008	0d
SCHAPP	Approved Schematic Milestone	P1008, P1007	P1010, P1011, PLN100	0d
SCHROW	Project ROW Limit/Footprint Set Milestone (Optional)	P1006		0d
Final Development (PS&E) Milestones				762d
A1000	Start PS&E Milestone	PLN100	RRCERT, F1000	0d
DES030	PS&E 30% Complete Milestone	F1001	UTL, ROW, ENWCLR, F1002	0d
DES060	PS&E 60% Complete Milestone	F1003	ENWCLR, F1004	0d
DES095	PS&E 95% Complete Milestone (Optional)	F1004	F1005	0d
DES100	PS&E 100% Complete Milestone	F1006	F1007	0d
ENWCLR	Environmental Clearance	E1001, DES030, ENWNEPA, DES060	L1000, E1002, RTL1000	0d
ROW	ROW Cleared for Construction	DES030, R1002	RTL1000, U1004, ZCONBEG	0d
ROWACQCERT	ROW Acquisition Certification Milestone	ROWSURV	L1000	0d
ROWCERT	Right-of-Way Certification Milestone	PLN000	L1000	0d
ROWENCCERT	ROW Encroachment Certification Milestone	ROWSURV	L1000	4d
ROWRELCERT	ROW Relocation Certification Milestone	ROWSURV	L1000	0d
RRCERT	Railroad Certification Milestone	A1000, P1003	L1000	0d
RTL1000	Ready to Let Milestone	UTL, F1006, ROW, F1007, ENWCLR, UTLGER	L1001	0d
UTL	Utilities Adjusted	U1004, DES030, F1006	RTL1000, ZCONBEG	0d
UTLCERT	Utility Clearance Certification	U1001	RTL1000	0d
ZAWARD	Commission Award of Contract	L1001	ZCONBEG	0d
ZCONBEG	Begin Construction	UTL, ROW, ZAWARD	CON1000, ZCONEND	0d
ZCONEND	End Construction	CON1000, ZCONBEG		0d
Planning Activities				754d
PROJECT DEFINITION				4d
P1000	Prepare Project Agreements - AFA	PLN000	R1002	1d
P1001	Develop Conceptual Schematic with Alternatives	PLN000	P1004, P1005, P1006, SCHALT	1d
P1002	Request Traffic Analysis	PLN000	ENWNEPA	1d
P1003	Prepare Project Agreements - RR	PLN000	RRCERT	1d
P1004	Prepare for and Conduct Public Meeting	P1001	SCHALT	1d
P1005	Alternative Selection Process	P1001	SCHALT	1d
P1006	Establish Project Footprint	P1001	SCHROW, SCHALT	1d
P1007	Prepare and Conduct Value Engineering Study	SCHALT	SCHAPP	1d
P1008	Schematic Design and Approval Process	SCHALT	SCHAPP	1d
P1009	Perform IAJR Process	SCHALT	PLN100	1d
P1010	Prepare and Conduct Public Hearing	SCHAPP	ENWNEPA	1d
P1011	Submit to DES/FHWA for Approval	SCHAPP	PLN100	1d
ENVIRONMENTAL				7d
E1000	Preparation of NEPA Environmental Process (EIS, EA)	SCHALT	ENWNEPA	1d
E1001	Prepare Environmental Clearance Documentation	ENWNEPA	ENWCLR	1d
E1002	Environmental Certification Process	ENWCLR	L1000	1d
RIGHT-OF-WAY				504d
R1000	Develop ROW Local Participation Agreements	PLN000	ENWNEPA	1d
R1001	Develop ROW MAPS and Parcel Legal Descriptions & App	SCHALT	ROWSURV	1d
R1002	Begin ROW Acquisition Process (24 month Process)	ROWSURV, ENWNEPA, P1000	ROW	500d
UTL				754d
U1000	Conduct Prelim Utility Investigations (SUE Level D, B & C)	PLN000	U1002, ENWNEPA, U1003, SCHALT	1d
U1001	Prepare Project Agreements - UTL	PLN000	UTLCERT, ENWNEPA	1d
U1002	Perform Level A SUE Work	U1000, PLN000	ENWNEPA	1d
U1003	Perform Conflict Analysis & Develop Utility Conflict Matrix	U1000	ENWNEPA	1d
U1004	Begin UTL Adjustment Process (12 month Process)	ROW	UTL	250d
Final Development (PS&E) Activities				8d
PS&E				8d
F1000	Prepare 30% PS&E	A1000	F1001	1d
F1001	Review 30% PS&E	F1000	DES030	1d
F1002	Prepare 60% PS&E	DES030	F1003	1d
F1003	Review 60% PS&E	F1002	DES060	1d
F1004	Prepare and Review 95% PS&E	DES060	DES095	1d
F1005	Prepare 100% PS&E	DES095	F1006	1d
F1006	Review 100% PS&E	F1005	RTL1000, UTL, DES100	1d
F1007	Conduct Final PS&E Review	DES100	RTL1000	1d
LETTING				749d
L1000	Project Certification Lag (5 months)	E1002, ENWCLR, ROWACQCERT, ROWRELC	L1001	1d
L1001	Perform District Letting Process	RTL1000, L1000	ZAWARD	4d
CONSTRUCTION				4d
CON1000	Construct Project (Actual Start & Finish Dates set by Site I	ZCONBEG	ZCONEND	4d

Attachment D: Procedure for Linking P6 Project Schedules

There may be instances when it is appropriate to link two or more schedules together using relationships between the individual schedules. This document provides two examples of such instances. These examples are not all inclusive and there may be other times when using the method in this procedure is applicable.

For example, when a project finishing an earlier phase produces multiple projects moving into subsequent phases, linking the earlier phase schedule to the subsequent phase schedule may be useful to be able to track the entire lifecycle of each project. Figure D.1 below shows where a project in the Scoping Phase results in two additional projects in the Planning and Final Development Phases. In the case where the Planning / Final Development Phases projects will have a different CCSJ than that of the project in the Scoping Phase, additional schedules should be developed for each CCSJ and then linked to the Scoping Phase schedule through logical relationships to show the overall life cycle for each CCSJ.

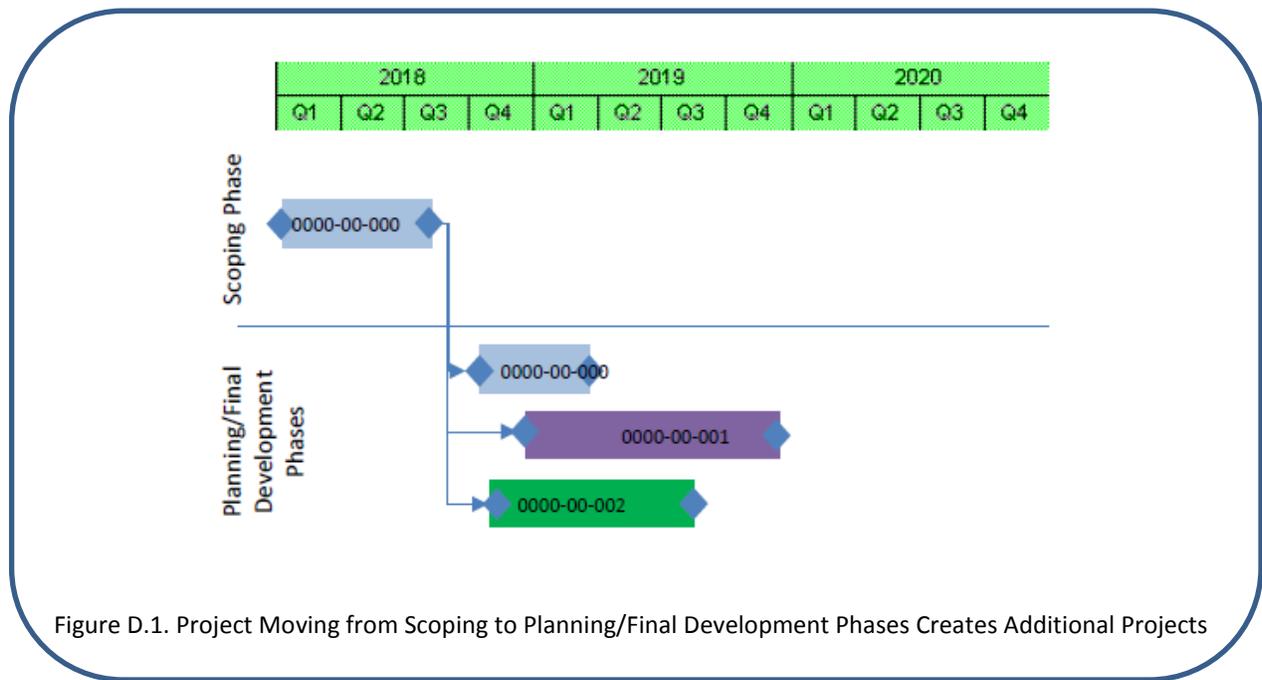


Figure D.1. Project Moving from Scoping to Planning/Final Development Phases Creates Additional Projects

To link these schedules together, use the following procedures in P6.

- I. Create schedule for each Planning/Final Development phase using the appropriate template as recommended in *Attachment B: Recommendations for P6 Template Use*.
- II. Link the Finish Milestone in the previous phase (Scoping) to the Start Milestone of subsequent (Planning/Final Development) phase
 - a. Open both schedules (original Project Scoping schedule and newly created Planning/Final Development schedule) at the same time as shown in Figure D.2:

Attachment D: Procedure for Linking P6 Project Schedules

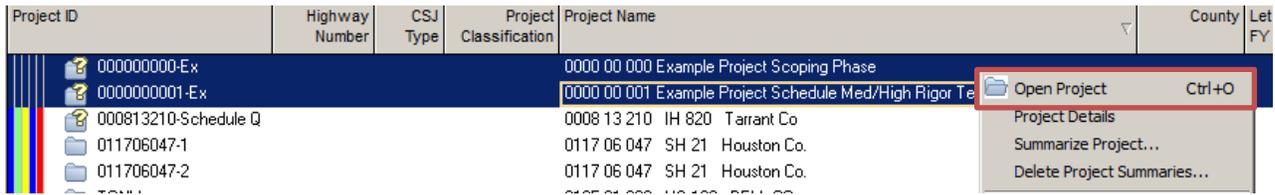


Figure D.2. Open Two Schedules by Highlighting Both, Right Click, Choose Open Project.

- b. Use a Finish-Start relationship to establish a link between the end of one phase and the beginning of the next phase as shown in Figure D.3. This will typically be the end milestone for the previous phase and start milestone for the subsequent phase. This connection allows the subsequent schedule to adjust based on the calculated or actual finish of the previous phase as each project is rescheduled.

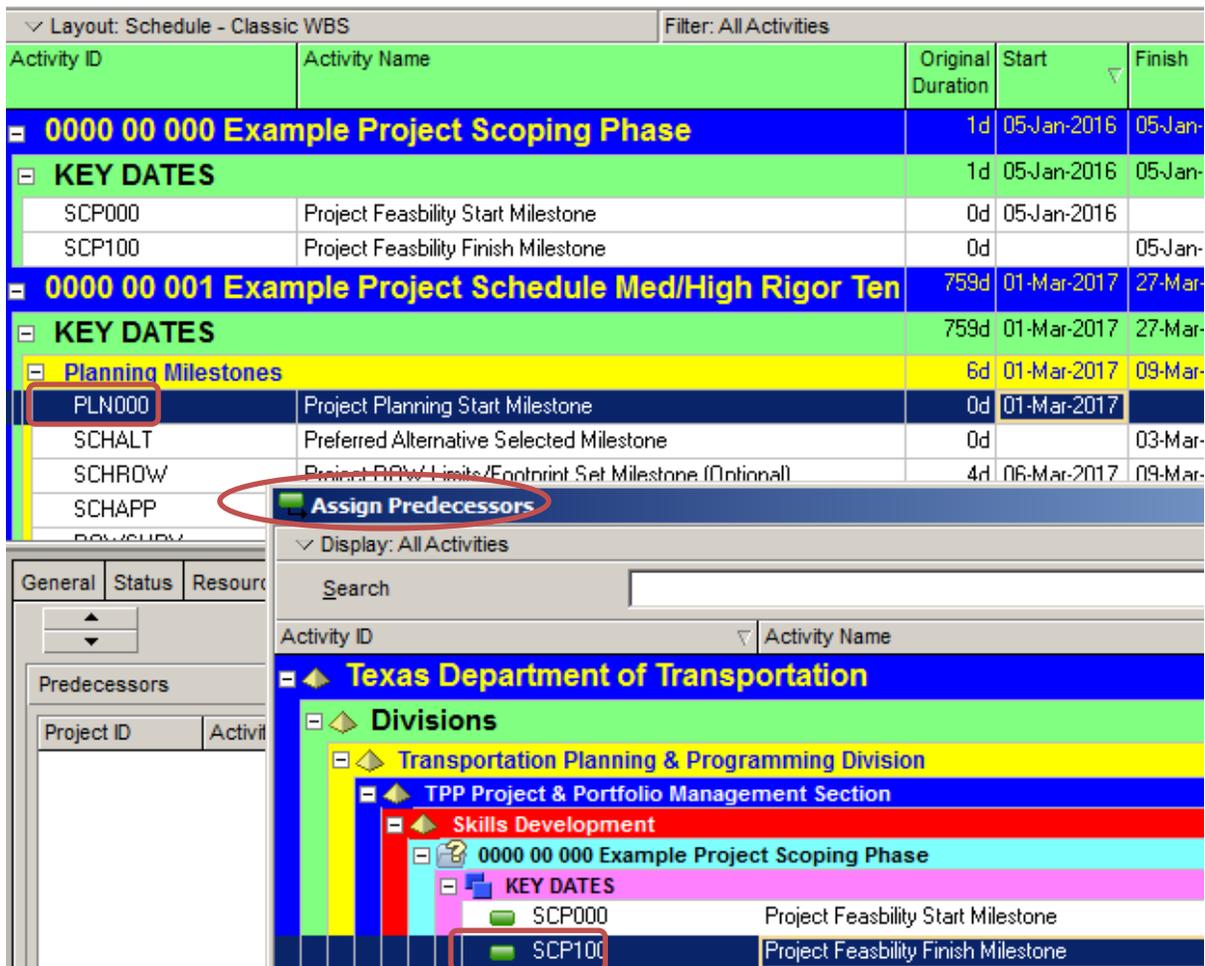


Figure D.3. SCP100 is Assigned as a Predecessor to PLN000 with a Finish-Start Relationship

- III. Schedule the projects with an appropriate data date and adjust schedules as needed.

Attachment D: Procedure for Linking P6 Project Schedules

- a. Note that the schedules are not required to have the same data date to be scheduled. It is considered a best practice for both projects to have the same data date as long as both are active. If the subsequent phase is not active, the schedules can be scheduled with independent data dates by clicking ‘Yes’ to the button shown in Figure D.4. Once the preceding project is completed, there is no need to update the data date for that schedule.

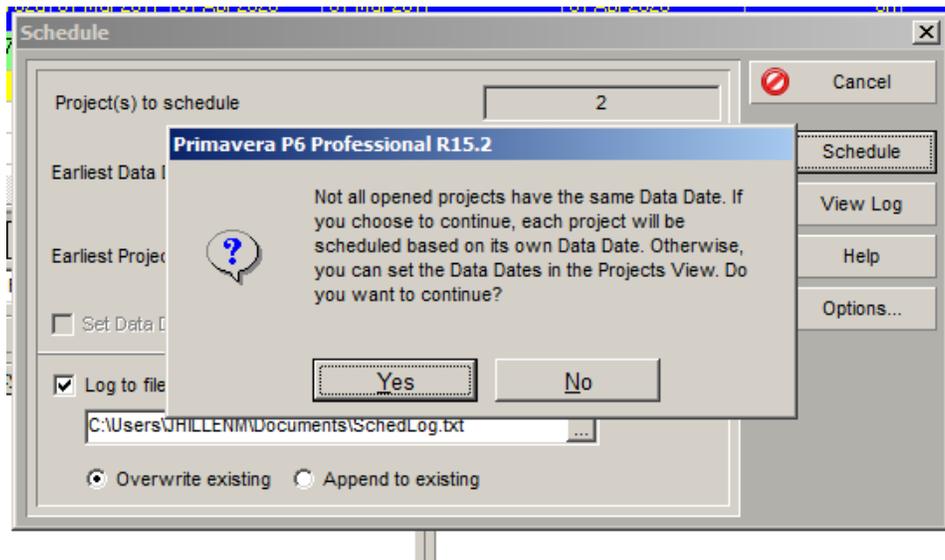


Figure D.4. Choosing ‘Yes’ Allows Two Schedules to be Scheduled with Different Data Dates

- b. The software will calculate a Start milestone for Planning/Final Development phases that represents an early start date by using existing relationships between phases.

Another scenario that may require the use of the linking procedure involves the case where a corridor project has multiple segments with various CCSJ in the same phase. In some instances these segments could have different development schedules, but may be linked together by the Environmental or ROW/UTL work to be done. In these cases, the Environmental or ROW milestones of one segment’s schedule may be linked to the Environmental or ROW milestones of another segment.

As an example, assume that the development of Segment 1 of a corridor is being completed by Consultant A and Segment 2 of the same corridor is being completed by Consultant B. However Consultant A is completing the environmental documents for the entire corridor. In this case the environmental milestones from the schedule for Segment 1 can be linked to the environmental milestones in the schedule for Segment 2 using the following procedure:

Attachment D: Procedure for Linking P6 Project Schedules

- I. Create a schedule with a unique CCSJ for each segment in the Planning/Final Development phase using the appropriate template as recommended in Attachment B: Recommendations for P6 Template Use.
- II. Connect the Environmental Milestone(s) in the Segment 1 schedule to the Environmental Milestone(s) in the schedule for Segment 2.
 - a. Open the both schedules at the same time as shown in Figure D.5.

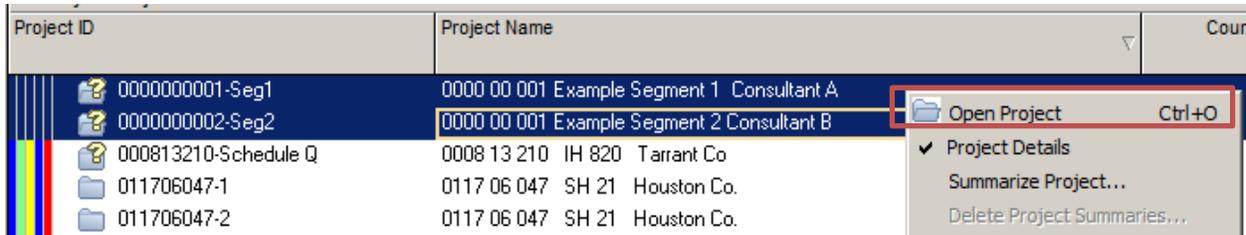


Figure D.5. Open Two Schedules by Highlighting Both, Right Click, Choose Open Project.

- b. Since the Environmental NEPA Clearance work for the corridor is solely dependent on the work done in Segment 1, the existing predecessor relationships in the schedule for Segments 2 can be Removed. Select each existing predecessor relationship and select Remove as shown in Figure D.6.

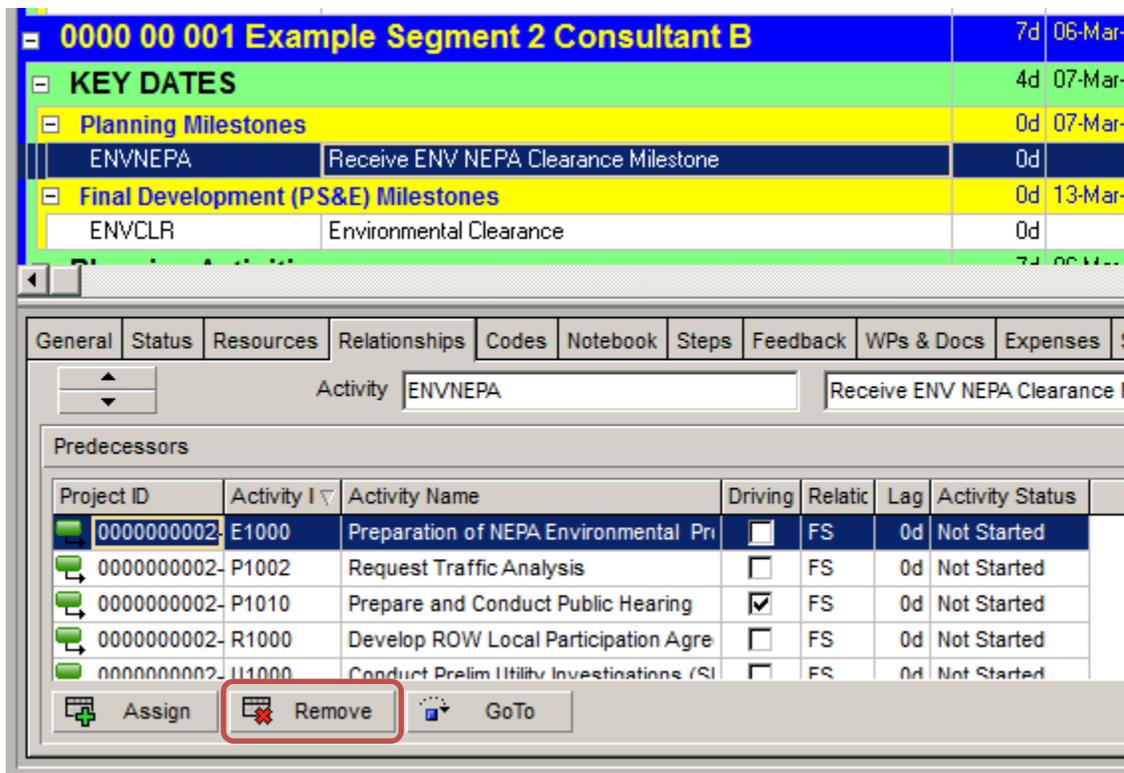


Figure D.6. Remove Existing Predecessor Relationships

Attachment D: Procedure for Linking P6 Project Schedules

- c. Use a Finish - Finish relationship to establish a link between the finish of the Receive ENV NEPA Clearance Milestone in Segment 1 and the Receive ENV NEPA Clearance Milestone Segment 2 as shown in Figure D.7. This connection allows the Finish Date in the Segment 2 schedule to be controlled by the Finish Date in the Segment 1 schedule.

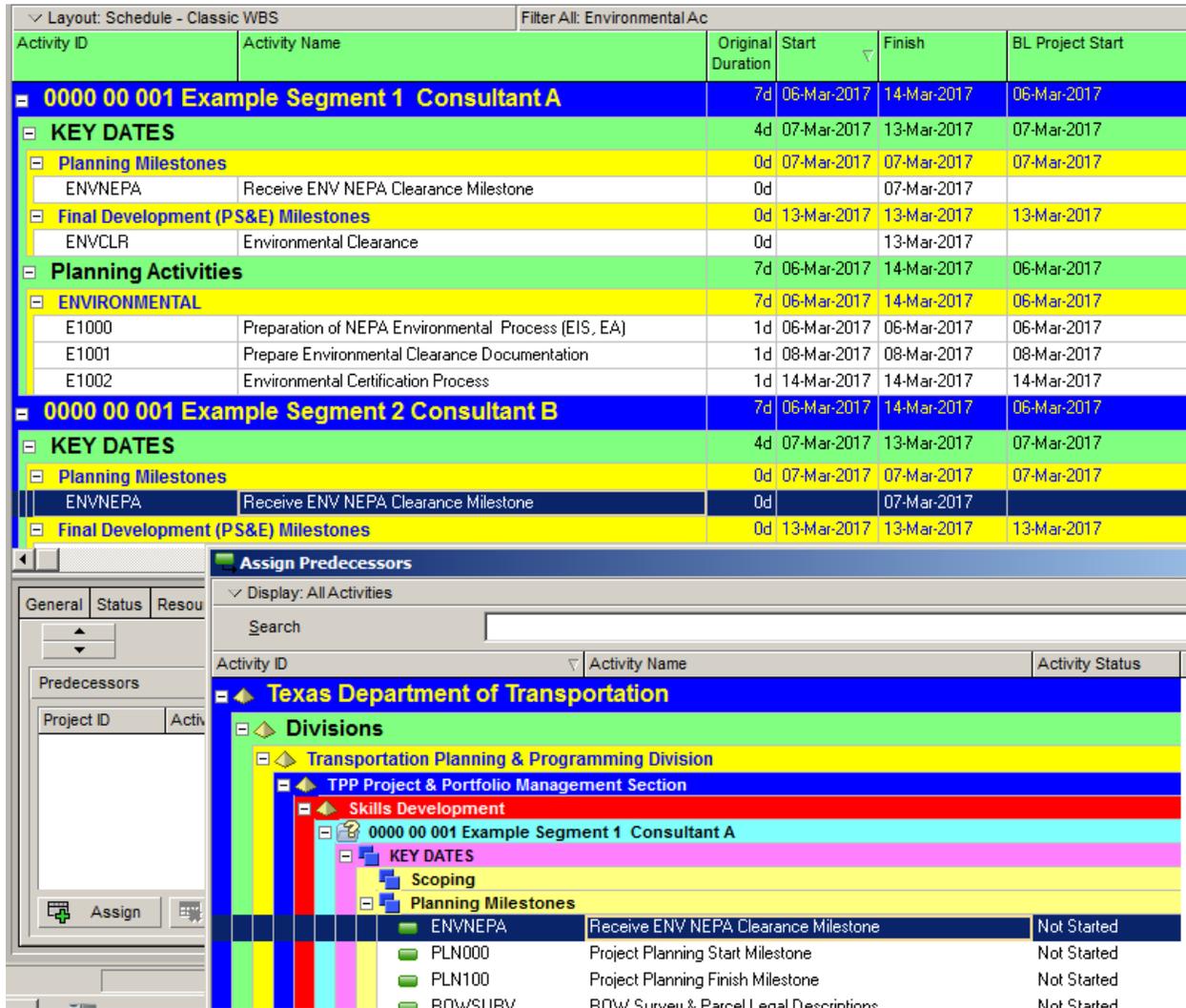


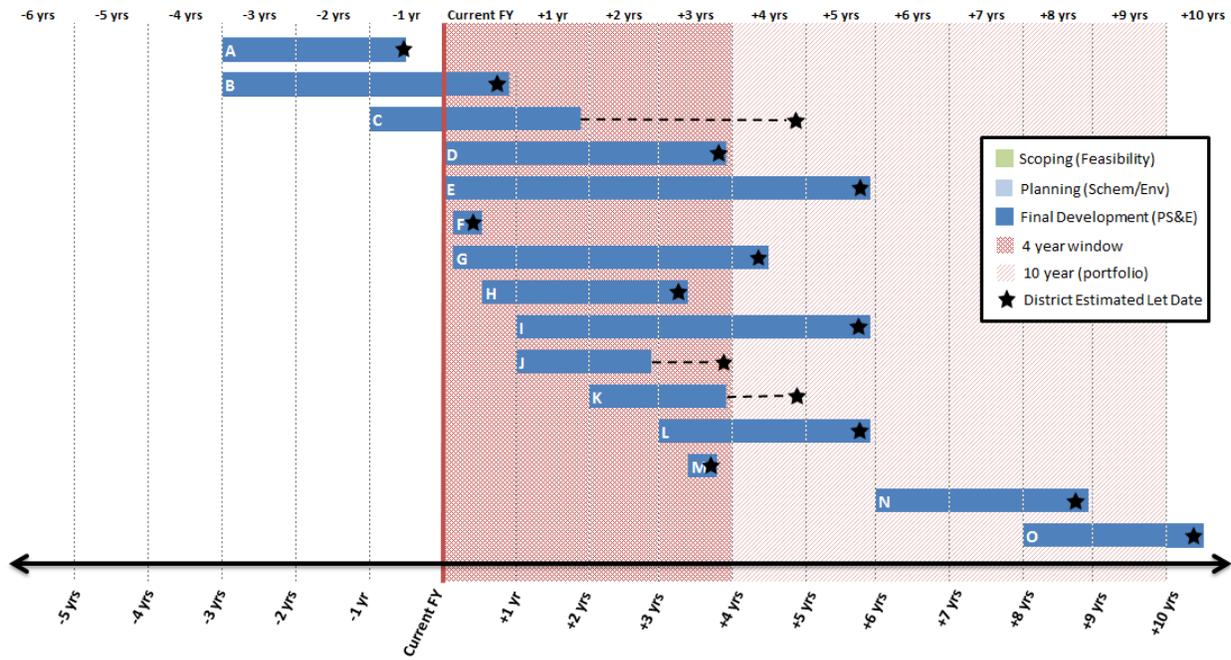
Figure D.7. Add Finish-Finish Relationship between Milestones in Segment 1 Schedule and Segment 2 Schedule.

- III. Schedule the projects with appropriate data dates and adjust schedules as needed.
 - a. Note that once the Receive ENV NEPA Clearance Milestone date in the Segment 1 schedule is marked as Finish, the milestone must also be checked as Finished in the Segment 2 schedule, otherwise the Segment 2 milestone will continue to push out with subsequent schedule updates.

Attachment E: Project Baseline Expectations by Phase

Project Baseline Expectation Examples during Final Development (PS&E) Phase

Examples of PS&E Phasing

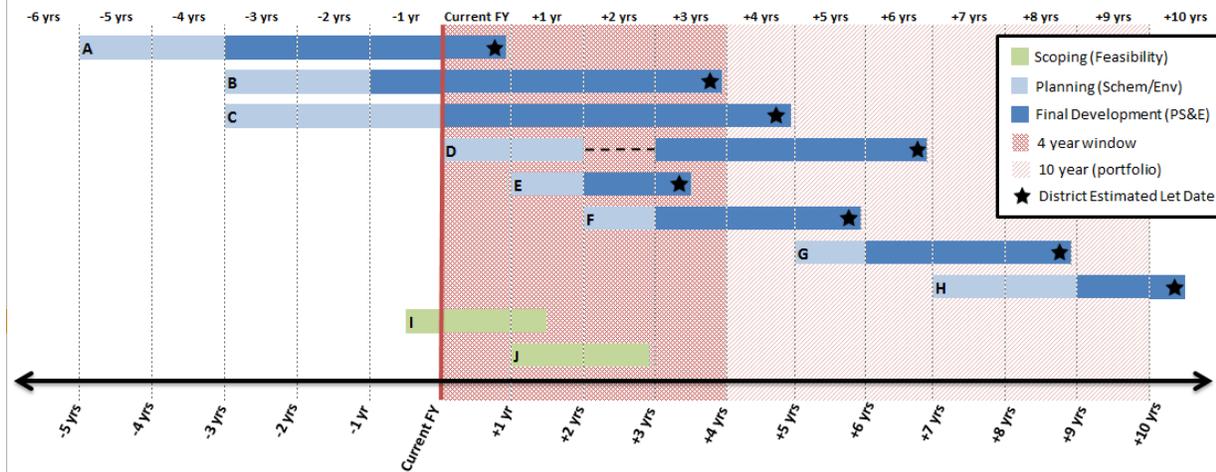


	PS&E Start (FY)	PS&E Schedule Expected?	P6 Project Status for PS&E	District Target RTL Date (FY)	Estimated Let Date (FY)	Project Baseline Expected?	Project Tracker Baseline Code Expected?	Expected to Show in Project Tracker?	Authority
A	-3 yrs	Yes	Inactive	-1 yr	-1 yr	YES	YES	No	C
B	-3 yrs	YES	Active	Current FY	Current FY	YES	YES	YES	C
C	-1 yr	YES	Active	+1 yr	+4 yrs	YES	YES	NO	D
D	Current FY	YES	Active	+3 yrs	+3 yrs	YES	YES	YES	C
E	Current FY	YES	Active	+5 yrs	+5 yrs	YES	YES	NO	D
F	Early Current FY	YES	Planned	Mid Current FY	Mid Current FY	YES	YES	YES	C
G	Early Current FY	YES	Planned	+4.5 yrs	+4.5 yrs	NO	NO	NO	D
H	Mid Current FY	YES	Planned	+3.5 yrs	+3.5 yrs	YES	YES	YES	C
I	+1 yr	YES	Planned	+5 yrs	+5 yrs	NO	NO	NO	D
J	+1 yr	YES	Planned	+2 yrs	+3 yrs	YES	YES	YES	C
K	+2 yrs	YES	Planned	+3 yrs	+4 yrs	NO	NO	NO	D
L	+3 yrs	YES	Planned	+5 yrs	+5 yrs	NO	NO	NO	D
M	+3.5 yrs	YES	Planned	+3.5 yrs	+3.5 yrs	YES	YES	YES	C
N	+6 yrs	YES	Planned	+8 yrs	+8 yrs	NO	NO	NO	D
O	+8 yrs	NO	NA	+10 yrs	+10 yrs	NA	NA	NA	P

Attachment E: Project Baseline Expectations by Phase

Project Baseline Expectation Examples during Scoping (Feasibility), Project Planning (Schematic/ENV), and Final Development (PS&E) Phases

Examples of Schematic/Env. and PS&E Phasing



	Feasibility Schedule Expected?	Schem/Env Start (FY)	Schem/Env Schedule Expected?	P6 Status (Schem/Env)	Schem/Env End - PS&E Start (FY)	PS&E Schedule Expected?	P6 Status (PS&E)	District Target RTL Date (FY)	Estimated Let Date (FY)	Project Baseline?	Project Tracker Baseline Code Expected?	Expected to Show in Project Tracker?	Authority
A	NO	-5 yrs	NO	NA	-3 yrs	YES	Active	Current FY	Current FY	YES (PS&E)	YES	YES	C
B	NO	-3 yrs	NO	NA	-1 yr	YES	Active	+3 yrs	+3 yrs	YES (PS&E)	YES	YES	C
C	NO	-3 yrs	NO	NA	Current FY	YES	Active	+4 yrs	+4 yrs	YES (PS&E)	YES	NO	D
D	NO	Current FY	YES	Active	+2 yr/+3 yrs	YES	Planned	+6 yrs	+6 yrs	YES (Planning)	YES	NO	D
E	NO	Mid Current FY	YES	Planned	+2 yrs	YES	Planned	+3.5 yrs	+3.5 yrs	YES (PS&E)	YES	YES	C
F	NO	+2 yrs	YES	Planned	+3 yrs	YES	Planned	+5 yrs	+5 yrs	NO	NO	NO	D
G	NO	+5 yrs	YES	Planned	+6 yrs	YES	Planned	+8 yrs	+8 yrs	NO	NO	NO	D
H	NO	+7 yrs	NO	NA	+9 yrs	NO	NA	+10 yrs	+10 yrs	NA	NA	NA	P
I	YES	NA	NO	NA	NA	NO	NA	NA	+1.5 yrs*	YES (Scoping)	YES	NO	P (Feas)
J	YES	NA	NO	NA	NA	NO	NA	NA	+1 yr*	NO	NO	NO	P (Feas)

*Feasibility end date

Revision History

Revision Number	Date	Change Description
2.0	6/2/2017	(1.1 Determine Need for Schedule) Added commentary on scheduling at CCSJ or CSJ level.
2.0	6/2/2017	(1.2 Identify / Re-assess Project Rigor) Added "Re-assess" in title
2.0	6/2/2017	(3.1 Update and Manage the Schedule at least Monthly) Removed wording related to Design on Time (DOT) report; edited to refer to DOT QC Tool
2.0	6/2/2017	(Figure 1. P6 Schedule Guide - Process Diagram) Removed "for reporting purposed from 3.0"
2.0	6/2/2017	(Figure 3. P6 Scheduling Expectations by Project Class) Added RL - State Owned Rail Line and RR - Railroad Relocation to Generally Expected to Schedule list
2.0	6/2/2017	(Table 1. Project Rigor Table) Removed reference to updating Project Rigor Code in DCIS
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Added new milestones: <ul style="list-style-type: none"> • SCHALT • SCHAPP • ROWENCCERT • ROWRELCERT • RRCERT
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Removed milestones: <ul style="list-style-type: none"> • PLN050
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Revised ROWMAP milestone name to ROWSURV
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Added Column to provide location to seek Further Information on Milestone
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Added column to indicate if Milestone was currently being pulling into District Portfolio Tool
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Replaced Note 2 to discuss milestones being pulled into Portfolio Tool
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Added Note 4 on Construction milestones
2.0	6/2/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Revised ROW milestone definition from "...cleared for construction." To "...possessed for construction."

Revision History

Revision Number	Date	Change Description
2.0	6/2/2017	(Table 5. Revised Baselines for Final Development Phase) Removed P6 Code 17: Resume Project
2.0	6/2/2017	(Attachment A. Process Relevance to management and Reporting) Revised text under Portfolio Management for Step 1.1
2.0	6/2/2017	(Attachment B. District Minimum Requirements for P6 Project Schedules) Edited 2. Templates Available to include a. Scoping (Feasibility) b. Planning & Final Development (Low Rigor) c. Planning & Final Development (Medium/High Rigor)
2.0	6/2/2017	(Attachment B. District Minimum Requirements for P6 Project Schedules) Added 5. Project schedules are expected to have appropriate Project Codes assigned when the schedule is created, as associated Table
2.0	6/2/2017	(Attachment B. District Minimum Requirements for P6 Project Schedules) Added 6. Project schedules are expected to have the name of the Project Manager assigned to that project entered into the Project Manager User Defined Field (UDF)
2.0	6/2/2017	(Attachment C. Recommendations for P6 Template Use) Revised text to include available templates and added reference to existing activities in templates
2.0	6/2/2017	(Attachment C. Recommendations for P6 Template Use) Updated images of templates to include new revised templates that include activities and relationships
2.0	6/2/2017	(Attachment D. Procedure for Linking P6 Project Schedules) Updated examples of when to use linking procedures
2.0	6/2/2017	(Attachment E. Project Baseline Expectation by Phase) Corrected dates for Project "M" for Final Development (PS&E) Phase
2.0	6/2/2017	(Attachment E. Project Baseline Expectation by Phase) Added "District" to Estimated Let Date in Legend
2.1	7/13/2017	Throughout. Removed references to "P6" where reference wasn't completely necessary.
2.1	8/29/2017	(Table 2. Milestone Requirements and Baseline Management Matrix) Definitions for ROW and UTL Milestones – removed statement "This may occur during construction."
2.1	8/31/2017	(Table 4. Commonly Used Progress Baselines) Removed PLN050 50% Schematic Baseline. Added SCHAPP – Schematic Approved Milestone

2.2	4/11/2018	(Figure 2. Project Schedule Decision Tree) Added LC, LN, and DB to Let Schedule 3 Values to be excluded
2.2	4/11/2018	(Figure 3. Scheduling Expectations by Project Class) Revised Project Class values to match new values including CSD, FOI, IOI, PED, RH, TCD, TPW, BIK, and ENV