

# Schedule Guide for Transportation Development Projects

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*Revised May 2023*

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## INTRODUCTION

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.

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. 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 processes explained in this guidance document.

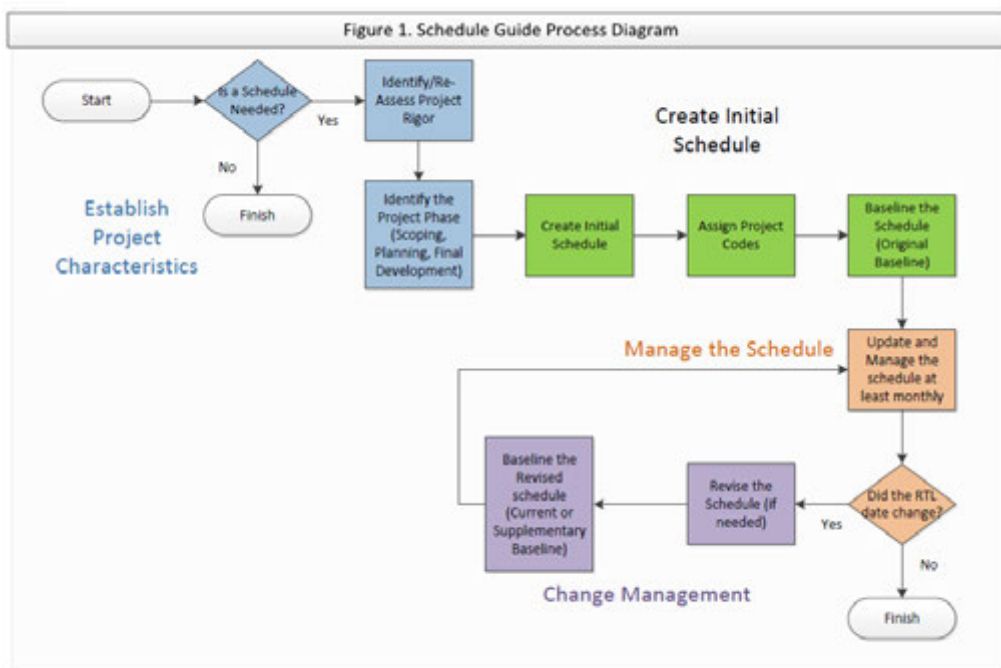


Figure 1. Schedule Guide Process Diagram

## SCHEDULE GUIDE PROCESS

### ESTABLISH PROJECT CHARACTERISTICS

**Schedule Expectations:** Having a schedule is a good project management practice. Although certain categories of projects are not expected to have a schedule in Oracle Primavera Cloud (OPC), consider the benefits of maintaining even a basic schedule for each project to manage more from a proactive, rather than reactive footing. Refer to Figure 2. Project Schedule Decision Tree and Table 1. Scheduling Expectations by Project Class below to determine if a project is expected to have a schedule.

### Key Definitions

**Oracle Primavera Cloud (OPC)**  
 – TxDOT’s scheduling software for the development and management of pre-letting project development schedules.

**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.

**Project Rigor** – a classification that considers project complexity, impacts, and risks.

**Initial Schedule** – This is the first planned Project Schedule before work begins. This represents the first schedule for a given phase based on current known and assumed factors.

**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.

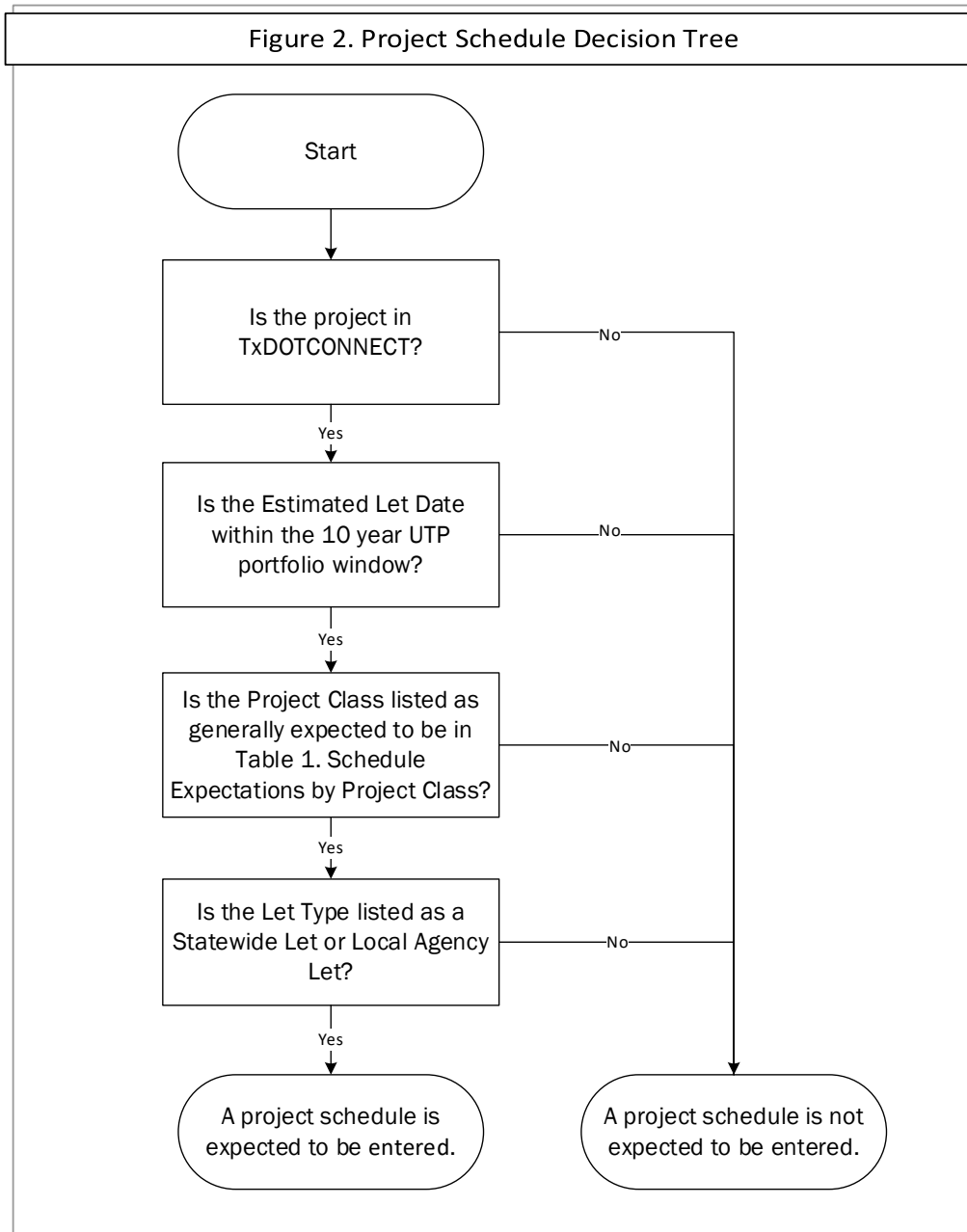





Figure 2. Project Schedule Decision Tree

 If a project is not expected to be entered, the project manager is still encouraged to develop a project schedule in OPC or other software.

 **A Local Agency Let** project is any project with at least one phase of project development managed by a local government (LG) agency for which it is being reimbursed with federal (FHWA) and/or state (TxDOT) funding. Or it is a totally local-funded project managed by the LG on the State Highway System.

 A schedule is expected for the Controlling Project ID, also known as the controlling or contract CSJ (CCSJ). A schedule can be optionally created for any subordinate CSJs (CSJ) if warranted.

If created, a CSJ schedule must be tracked and maintained for data to correctly populate TxDOTCONNECT 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.

**Table 1. Scheduling Expectations by Project Class**

Generally Expected to be Scheduled		Not Expected to be Scheduled	
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. Scheduling Expectations by Project Class*

**Project Rigor:** A project’s rigor is directly related to the level of risk and complexity associated with the project. Identifying and evaluating the risks will support the development of a more realistic schedule and management approach to the project. Table 2. Project Rigor can be used to determine the rigor of the project.

**Table 2. Project Rigor**

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

<sup>1</sup> Environmental factor may be ignored if the NEPA process has been completed.

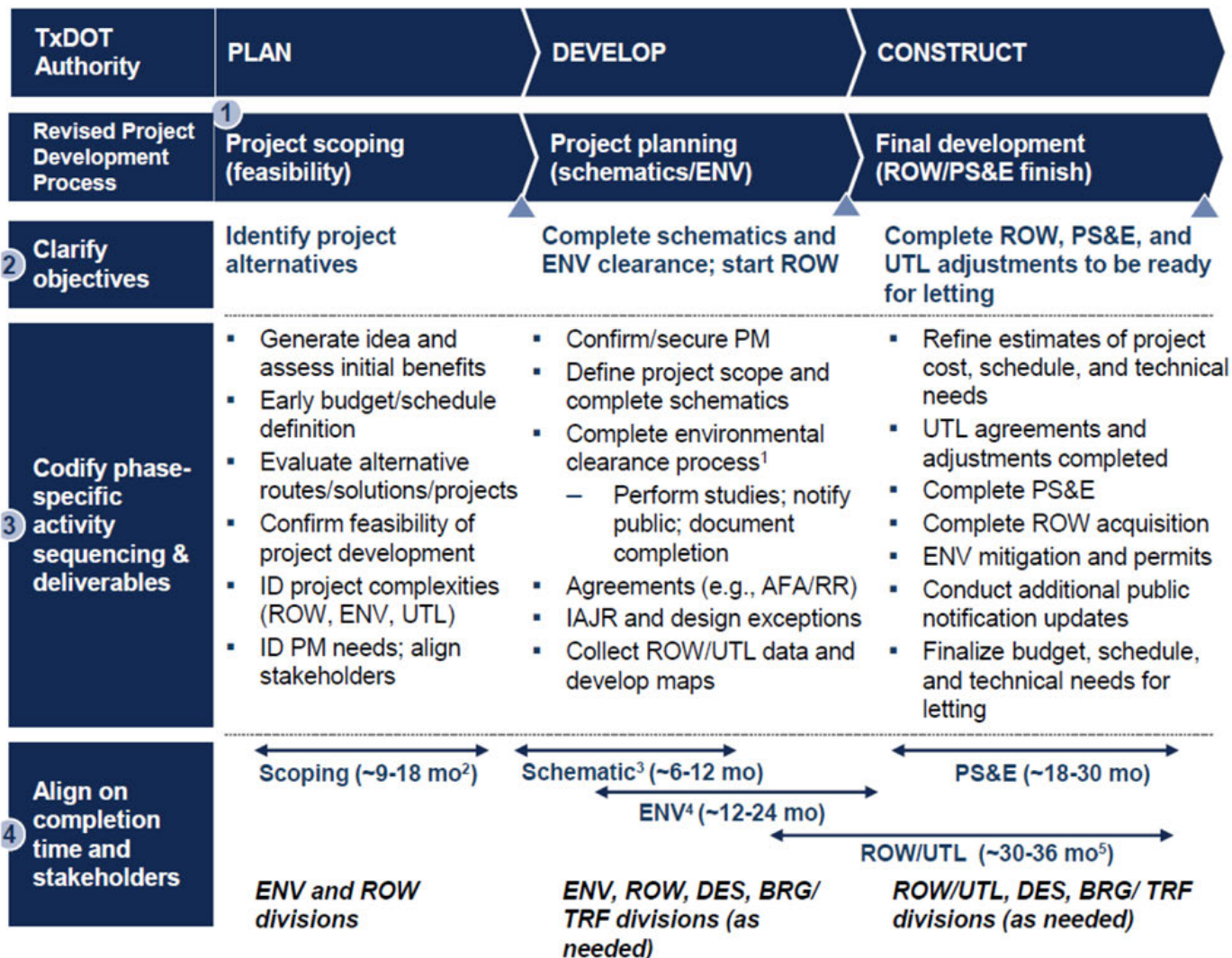
<sup>2</sup> ROW and Utility Impact should be determined by District and ROW Staff. High potential for delay should be confirmed by the District Engineer or designated staff.

<sup>3</sup> 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.

**Project Phase:** The project phase is where the project currently is within the project development process and is used to identify necessary relevant milestones and key dates. Figure 3. Project Development Process Phases is useful in defining Project Phase.

Figure 3. Project Development Process Phases

▲ Technical review stage gate



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:
- <sup>1</sup> Complete environmental review to the fullest extent possible.
  - <sup>2</sup> Per TPP estimates.
  - <sup>3</sup> Per TPP estimates.
  - <sup>4</sup> Common range across environmental review.
  - <sup>5</sup> Range based on right of way need for projects with different levels of complexity.

**CREATE INITIAL SCHEDULE**

For the level of detail needed, the project manager (PM) ensures key milestones and activities are identified with realistic decisions on durations and accurate relationships. The critical path is calculated, which should be a basis for how the PM manages the project team. The following are expectations for all project schedules created.

1. **Key Dates:** All project schedules are required to have Key Dates (Milestones), depending on the rigor and phase of the project. For definitions of the required Key Dates per phase, see Appendix A. Milestone Requirements and Definitions. For convenience, the following OPC 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. The templates are available in OPC under the TxDOT Districts workspace and is available across all workspaces.

**Projects for TxDOT Districts**

The screenshot shows a software interface with a search bar at the top left containing the text 'Search'. Below the search bar are three filter buttons: 'Texas Department of Transportation', 'Non Production', and 'Production'. To the right, under the heading 'Projects', there is a table with columns for '+ Add', 'Actions', 'Show: Values & Indicators', and 'View: View'. The table lists several project templates under the category 'Districts - TxDOT Districts':

Name *
2020 Project Schedule Med/High Rigor Template - Planning & Final Development
2022 Project Schedule Med/High Rigor Template - Planning & Final Development
2023 Project Schedule Low Rigor Template - Planning & Final Development
2023 Project Schedule Med/High Rigor Template - Planning & Final Development

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

Each template includes the Key Dates (milestones) that are expected and at least one activity to represent the work to complete each required milestone. If a particular milestone is not necessary on a project that milestone may be deleted from the schedule and no activity is needed. 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.

2. **Activities:** All project schedules are expected to have at least one activity to represent the work associated with each required milestone as identified under Key Dates and valid relationships between activities and those required milestones, with no open ends.





Involve people from all aspects of the project development process in the creation of the schedule. In particular, ask for specific activities and relationships, dates, durations, and constraints from the people responsible for each task during development of the project (i.e. ROW, UTL, ENV, BRG, design staff, TRF, PIO, etc.)

- 3. Project Codes:** Project schedules are expected to have appropriate OPC Project Codes assigned when the schedule is created. The Project Codes should be updated as needed as the project progresses. These Project Codes include:

**Table 3. Project Codes**

OPC Project Code	Appropriate Values
Schematic Required	Yes, No
ROW Needed	Yes, No
UTL Required	Yes, No
AFA Needed	Yes, No
PSE-Percent Comp	0% - 100% in increments of 5%
TxDOT Project Grouping	Creates Heiarchial District Structure

- 4. OPC Project Status:** All project schedules should be set to the appropriate OPC Project Status according to the following OPC Project Status Chart. The Project Status is by viewing the project Summary and Settings on the individual project home page in OPC.

**Table 4. OPC Project Status**

OPC PROJECT STATUS	WHEN TO USE
<b>PLANNED</b>	For projects with future start dates. Work has not yet begun.
<b>ACTIVE</b>	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.
<b>INACTIVE*</b>	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.
<b>COMPLETE</b>	When a project is fully completed.

- 5. **Critical Path:** Once the initial schedule has been created the critical path should be calculated by scheduling the project. The default for calculating the critical path should be set to the Longest Path method in OPC.
  
- 6. **Original Baseline:** The baseline provides a snapshot of the initial plan for future reference and comparison by the PM and for use in required reporting. Project schedules are expected to have an Original Baseline type for all projects with an Estimated Let Date in TxDOTCONNECT within the first four years of the ten year UTP portfolio window and for any project that is actively being worked on.

The planned milestone dates from the Original Baseline will be used to populate data in TxDOTCONNECT, Project Tracker, and used in the Design on Time calculation.

District users with the District Controls global security profile in OPC can take a baseline on the initial schedule and select the appropriate OPC Baseline Type. The list of District Control staff in each district is available on the [PPM Scheduling Support website](#).

## Additional Guidance



For more guidance on creating a project schedule in OPC see the OPC Training Videos on the PPM YouTube page [here](#).



For more information on the Design on Time measurement see DoT Guidance document [here](#).



For more information on how P6 schedule data affects Project Tracker see guidance [here](#).

## MANAGE THE SCHEDULE

All project schedules with a OPC Project Status of Active are expected to be monitored and managed by updating the schedule at least once a month. This includes:

- Progressing the data date
- Updating actual progress
- Updating start and finish dates for activities
- Updating remaining durations
- Adding or removing activities as needed
- Documenting significant changes to the schedule as needed
- Recalculating the schedule
- Viewing log and correcting logic errors, and
- Identifying and evaluating any changes to the critical path and milestone dates

The project manager is responsible for managing the schedule and project team, reviewing the critical path, and making adjustments to keep the project on track to meet the Ready to Let milestone date (RTL1000) as planned for in the baseline schedule. Management of the project and schedule may result in shifting milestone dates, including the RTL date. For shifts in intermediate milestone dates with no change to the RTL milestone date, the schedule should continue to be managed by updating the schedule at least monthly with the bullets listed above.

## CHANGE MANAGEMENT

In some cases, the planned activities and resulting critical path can no longer be managed to meet the planned Ready to Let milestone finish date (RTL1000). 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 opportunity to revise the future target dates to align with expected outcomes which could also improve reporting status.

The current schedule should be revised to reflect the most recent plan and a new baseline should be taken. The new baseline type will be a Current Baseline or a Supplementary baseline as described below.

**Current Baseline:** A Current Baseline type is used when a project schedule is revised to reflect a change in the project development and RTL1000 milestone of the schedule. When a Current Baseline type is assigned the planned baseline dates from the Current Baseline will be used in TxDOTCONNECT, Project Tracker, and in the Design on Time calculation.

**Supplementary Baseline:** A Supplementary Baseline type is a revised baseline that is only used for reporting on Project Tracker. If a Supplementary Baseline type is assigned on a schedule the planned baseline dates from the supplementary baseline will be used in Project Tracker. The planned baseline dates from the Current Baseline will be used in TxDOTCONNECT and in the Design on Time calculation.

Appendix A. Milestone Requirements and Definitions

Project Phase	Key Dates (Milestones)		Milestone Definition	Minimum Milestones Required In Schedule			Further Information on Milestone	Project Tracker Milestones
				<i>(Provided in available OPC templates)</i>				
	Activity ID	Activity Name		Project Starts in Scoping Phase	Project Starts in Planning or Final Development Phase			
Low Rigor			Med/High Rigor					
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	-
Project Scoping	SCP100	Project Scoping Finish Milestone	Scoping Phase is complete.	✓			-	-
Project Planning	PLN000	Project Planning Start Milestone	Any resources have begun working on the Planning Phase of a project.		✓ <sup>1</sup>	✓ <sup>1</sup>	PDP Manual, Chapter 1, Section 3	-
Project Planning	SCHALT	Preferred Alternative Selected Milestone	After all alternative solutions have been studied, compared, and ranked, a preferred alternative is selected.		✓ <sup>1</sup>	✓ <sup>1</sup>	PDP Manual, Chapter 2, Section 4	-
Project Planning	AFACOMP	AFA Complete	Advanced Funding Agreements have been executed.		✓ <sup>1</sup>	✓ <sup>1</sup>	PDP Manual, Chapter 1, Section 5	-
Project Planning	IAJRCOMP	IAJR Complete	Interstate Access Justification Report has been approved by FHWA		✓ <sup>1</sup>	✓ <sup>1</sup>	PDP Manual, Chapter 2, Section 5	-
Project Planning	SCHAPP	Approved Schematic Milestone	Schematic has been approved by the applicable entities.		✓ <sup>1</sup>	✓ <sup>1</sup>	PDP Manual, Chapter 2, Sections 5 & 7; PS&E Prep Manual Chapter 1, Section 3	-
Project Planning	PLN100	Project Planning Finish Milestone	Planning Phase is 100% complete.		✓ <sup>1</sup>	✓ <sup>1</sup>	-	-
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	-
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	-
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
Final Development	DES030	30% Complete Milestone	30% PS&E completion as defined per project. For simple paving projects this milestone may not be applicable.			✓	PEPS Selection Manual, Chapter 6, Section 7	Design 30% Complete
Final Development	DES060	60% Complete Milestone	60% PS&E completion as defined per project. For simple paving projects this milestone may not be applicable.			✓	PEPS Selection Manual, Chapter 6, Section 7	Design 60% Complete

Project Phase	Key Dates (Milestones)		Milestone Definition	Minimum Milestones Required in Schedule			Further Information on Milestone	Project Tracker Milestones
				<i>(Provided in available OPC templates)</i>				
	Activity ID	Activity Name		Project Starts in Scoping Phase	Project Starts in Planning or Final Development Phase			
Low Rigor			Med/High Rigor					
Final Development	DES095	95% Complete Milestone	95% PS&E completed with construction details fully developed and drafted including the development of specifications needed for the project.		✓ <sup>1</sup>	✓ <sup>1</sup>	-	
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
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
Final Development	ROWCERT	Right-of-Way Certifications Milestone	These certifications describe the status of the right-of-way acquisition process, encroachments, and proper relocation assistance if right-of-way was acquired.		✓	✓	PS&E Prep Manual, Chapter 5, Section 3	Right of Way Coordination
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	-
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
Final Development	ROW	ROW Possessed Milestone	Corresponds to when all ROW parcels have been possessed for construction.			✓	-	-
Final Development	UTL	Utilities Adjusted Milestone	Corresponds to when all utilities have been cleared for construction.			✓	-	-
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
Post Let	ZAWARD <sup>2</sup>	Commission Award of Contract	Commission Award of Contract		✓	✓	PDP Manual, Chapter 6, Section 1	-
Post Let	ZCONBEG <sup>2</sup>	Begin Construction	Construction has begun		✓	✓	-	-
Post Let	ZCONEND <sup>2</sup>	End Construction	Construction is complete - based on work accepted date		✓	✓	-	-

<sup>1</sup>These milestones are required if this type of work is to be completed on the project, otherwise remove milestone.

<sup>2</sup>These milestones are automatically set by Site Manager when the project enters Construction and are used in the OPC Auto Archiving program to archive completed schedules.

## Revision History

Revision Date	Change Description
August 2021	(Table 3. Project Codes) Updated Railroad Coordination Needed code to indicate a manual entry is needed
August 2021	(Table 5. Initial Baseline) Added P1 baseline type for Active projects in Schematic & Env when the Estimated Let Date is outside of the 4 year UTP window
May 2023	Updated to move from Primavera P6 to Oracle Primavera Cloud software. Revisions include: <ul style="list-style-type: none"> <li>• Changing template image and location</li> <li>• Updating OPC Project Status – removing What-If</li> <li>• Revision of baselining – deleting baseline codes</li> <li>• Removing Tracker Baseline information</li> <li>• Adding Original, Current, and Supplementary Baseline type information</li> </ul>