

EXPRO National Manual for Projects Management

Volume 3, chapter 7

Project Schedule - Level 1 Procedure

Document No. EPM-S00-PR-000005 Rev 003



Project Schedule - Level 1 Procedure

Document Revisions History:

Revision:	Date:	Reason For Issue
000	30/10/2017	For Use
001	24/01/2019	For Use
002	07/03/2019	For Use
003	10/08/2021	For Use



Project Schedule - Level 1 Procedure

THIS NOTICE MUST ACCOMPANY EVERY COPY OF THIS DOCUMENT

IMPORTANT NOTICE

This document, ("Document") is the exclusive property of the Expenditure Efficiency & Projects Authority ("Expro").

This Document should be read in its entirety including the terms of this Important Notice. The government entities may disclose this Document or extracts of this Document to their respective consultants and/or contractors, provided that such disclosure includes this Important Notice.

Any use or reliance on this Document, or extracts thereof, by any party, including government entities and their respective consultants and/or contractors, is at that third party's sole risk and responsibility. Expro, to the maximum extent permitted by law, disclaim all liability (including for losses or damages of whatsoever nature claimed on whatsoever basis including negligence or otherwise) to any third party howsoever arising with respect to or in connection with the use of this Document including any liability caused by negligent acts or omissions.

This Document and its contents are valid only for the conditions reported in it and as of the date of this Document.



Project Schedule - Level 1 Procedure

Table of Contents

1.0	PURPOSE	5
2.0	SCOPE	5
3.0	DEFINITIONS	5
4.0	REFERENCES	5
5.0	RESPONSIBILITIES	5
6.0	PROCESS	6
6.1	Introduction	6
6.2	Key Features	6
6.3	Development	7
6.3.1	Historic Information and Overall Duration	7
6.3.2	Stage Gate Process	8
6.3.3	Engineering	8
6.3.4	Permitting	8
6.3.5	Procurement	8
6.3.6	Contract Formations	8
6.3.7	Construction	9
6.3.8	Asset Service Life	9
6.3.9	Schedule Contingency	9
7.0	ATTACHMENT	9
	Attachment 1 - EPM-S00-TP-000013 - Level 1 Schedule, Registration Phase Template	10



Project Schedule - Level 1 Procedure

1.0 PURPOSE

The Project Schedule – Level 1 (“Project Schedule”) is developed during Stage 2 (Initial Planning) of the Project Stage Gate process. It builds on the Initial Project Schedule, prepared as part of the Entity’s 5-Year Projects Portfolio Planning process, and incorporates additional information available from enhanced projects definition i.e. concept masterplan and development framework, environmental assessment, land acquisition strategy, permitting plans, etc. The Project Schedule is a pre-requisite deliverable to pass Stage 2 of the Project Stage Gate Process.

The purpose of the Project Schedule is to develop, refine, validate and communicate the project schedule duration, timing estimates and requirements developed during the Initial Planning for purposes of accomplishing Stage Gate 2 of the Project Stage Gate Process.

This procedure applies to works performed under all Government construction projects executed throughout the Kingdom of Saudi Arabia.

2.0 SCOPE

This procedure applies to all projects Registered with the Expro with the intent to comply with Stage Gate 2 (Initial Planning) requirements.

3.0 DEFINITIONS

Definitions	Description
5-Year Projects Portfolio Plan	A five-year schedule of Projects for an Entity, updated annually.
Contractor	One that agrees to furnish materials or perform services at a specified price, especially for construction work.
Entity	A Saudi Government organization which is responsible for the delivery of government funded infrastructure projects.
NIISP	National Integrated Infrastructure Strategy Plan
Project	Project to be undertaken by an Entity that consists of single or multiple Agreements with 2nd Parties to perform Works or Services as part of the execution plan to deliver such Project. Scope of Work and/or services identified by Entity that needs to be executed.
Project Schedule – Level 1	A 1 page (normally A3 size at Project Stage) summary schedule including duration estimates, risk items, critical path, and key events

4.0 REFERENCES

1. EPM-EQ0-PR-000001 - Project Stage Gate Procedure
2. EPM-S00-GL-000001 - Project Registration Introduction
3. ENT-S00-MN-000001 - Entity 5-Year Projects Portfolio Planning Guide
4. EPM-S00-PR-000006 - Project Cost Estimate (Class 4) Procedure
5. EPM-KPP-PR-000001 - Project Planning & Scheduling Definitions and Concepts Procedure
6. EPM-KPP-PR-000002 - Project Schedule Development Procedure

5.0 RESPONSIBILITIES

The procedure will be undertaken by a Planner, with sufficient knowledge and experience, upon the request of the Stage 2 Coordinator. Once the schedule has been prepared, it will then be reviewed by the Planning Manager, and concurred by the Coordinator.



Project Schedule - Level 1 Procedure

6.0 PROCESS

6.1 Introduction

The Project Schedule is characterized as a “Level 1” schedule which corresponds to the highest level of project schedule, and depicts the entire scope of the project in a time-scaled graphic. The Project Schedule integrates with Expro’s National Integrated Infrastructure Strategic Plan (NIISP) and the Entity’s 5-Year Projects Portfolio Plan. These Infrastructure plans firstly set out project type, size and essential timing requirements, and the Project Schedule provides further schedule maturity and validation of individual project duration.

The Project Schedule is a refinement of the Initial Project Schedule developed and submitted for Stage Gate 1 (Project Registration) of the Project Stage Gate process.

6.2 Key Features

The key salient features of the Project Schedule are tabulated in Figure 1 below. These considerations shall be incorporated in the development of the schedule. The additional information available is used to refine estimated project durations, and validate project durations as set out in the NIISP and Entity 5-Year Projects Portfolio Plans.

Figure 1: Key aspects of Project Schedule – Level 1 prepared during Initial Planning Stage of the Project Stage Gate process

Software:	The use of professional planning / scheduling software is not essential at this stage and spreadsheets (MS Excel, or similar) are best suited as they provide ease of use and flexibility to add annotation, mark-ups, text boxes, etc.
Layout:	The layout of the schedule shall follow a standard project plan / schedule template in a waterfall format. Activities start at the upper left flowing towards the lower right. Where appropriate, activities can be grouped to ease readability and / or suit the audience type.
Legibility:	For the purposes of presentation and distribution, the Project Schedule should fit legibly on landscape oriented A3 sheet
Revisions:	The project Planner shall use appropriate revision tracking, with the revisions clearly marked in the information box of the schedule, to avoid confusion on latest version. The Planner shall also appropriately watermark any print or online distribution of the schedule.
Total Scope:	The schedule shall include all major aspects of the project’s scope. This includes, but is not limited to, Design, Long Lead Procurement, Construction, Testing & Commissioning, followed by total service life of the Asset created by the intended project. The Project Schedule shall also identify key In-direct scope such as Mobilization, Temporary Access and Construction, etc.
Activity Durations:	Activity durations shall be based typically on historical data, or calculated using job hours and unit rates for given quantities with assumed resource availability.
Major Enabling Work:	The Project Schedule shall identify all major enabling works, such as but not limited to, access roads, excavation and backfill activities, critical underground activities, etc.



Project Schedule - Level 1 Procedure

Major Equipment:	The Project Schedule shall identify schedule requirements for design, delivery, and installation of all major equipment procurement such as Baggage Handling System, Heating, Ventilation and Air Conditioning equipment, electrical substations, etc.
Major Bulk Activities:	The Project Schedule shall identify schedule requirements for design, delivery and installation of specific major bulk commodities such as structural steel, high voltage cable, etc.
Major Interfaces:	All major interfaces, such as but not limited to, public authorities, other Entities, contractors, other projects shall be identified.
Pre-operational Testing and Commissioning:	The Project Schedule shall identify schedule requirements for all major pre-operational testing and commissioning activities, such as but not limited to, energization, key systems completion, operational readiness, etc.
Abnormal Work Periods:	The Project Schedule shall identify “curtain” periods of impacted productivity, such as monsoon, peak summer, Ramadan, National Holidays, etc.
Asset Service Life:	The Asset service life determined during the Strategic Planning stage should be re-checked and validated.
Basis and Assumptions:	A textbox explaining basis and assumptions shall be included in order to provide references (scope document, schedule version, timing and duration requirements, etc.)
Risks:	Key schedule risks shall be identified and noted on the schedule document. Any consideration for Optimism Bias or schedule contingency should also be identified.
Activity Count:	Given the level of project definition and information available at this stage, the initial project schedule would typically constitute 30 to 80 activities.

6.3 Development

6.3.1 Historic Information and Overall Duration

It is not yet possible to build “bottom’s up” schedules, meaning built from detailed activities, at this stage. There is simply not enough design information or quantification of commodities in order to achieve this.

The approach needs to be “top-down”, meaning that the durations of the activities and of the overall project will need to be on industry experience and/or based on similar projects.

There will have been an initial exercise to determine project durations during the strategic planning stage, and can form the starting point from which the schedule can be validated and more detail incorporated.

It is critically important to include sufficient time for the bidding processes prior to project execution. This will trigger timely generation of project bid documents.



Project Schedule - Level 1 Procedure

6.3.2 Stage Gate Process

The Project Schedule shall identify all Stage Gates, per the Project Stage Gate Process, as Milestones.

6.3.3 Engineering

All applicable phases of Engineering (Tendering, Conceptual, Feasibility, Basic, Detailed) shall be identified and a reasonable duration determined. Decision needs to be made to what level of detail and completion Engineering will need to have progressed before starting the Construction Tendering Process. It normally is beneficial to at least tender and award for construction enabling works and mass earth works before detail engineering is fully complete.

6.3.4 Permitting

The Project Schedule shall identify all significant permitting and enabling activities or milestones. This includes, but is not limited to, board approvals, funding approvals, land acquisition activities, environmental assessments, etc.

6.3.5 Procurement

The Project Schedule shall identify and schedule all significant Purchase Orders (PO). The schedule for each PO shall include the following activities and / or milestones:

- Preparation of Request for Proposal (RFP) (Task)
- Issue RFP (Milestone)
- Bid Preparation period, Evaluation and Award Period (Task)
- PO award (Milestone)
- Fabrication and delivery (Task)
- Delivery (Milestone)

The delivery milestone needs to represent the first significant delivery that will allow substantial start of installation of said PO. The durations for procurement activities shall be determined by the Procurement Department based on historical information and high level market research.

6.3.6 Contract Formations

The Project Schedule shall identify and schedule all significant Contract Formations. The schedule for each contract shall include the following activities and / or milestones:

- Preparation of RFP (Task)
- Issue RFP (Milestone)
- Bid Preparation period, Evaluation and Award Period (Task)
- Contract award (Milestone)
- Mobilization (Task)
- Start of permanent construction activities (Milestone)

The durations for Contract Formation activities shall be determined by the Contracts Department.



Project Schedule - Level 1 Procedure

6.3.7 Construction

The Project Schedule should include, where applicable, the following representative construction activities:

- Enabling works (access roads, camp, ...)
- Mass Earthworks
- Underground works (if significant or critical)
- Applicable major commodities (Structural Earthworks, asphalt, concrete, structural steel, ...)
- Applicable areas, facilities or buildings
- Applicable systems like fuel, water and electric supply, Information Technology infrastructure, ...
- Testing and Commissioning

The durations for these activities shall be determined by the Construction Department, based on combination of historical information and quantity analyses.

6.3.8 Asset Service Life

Asset service life identified in the Initial Project Schedule should be confirmed. This will then inform the Whole Life Costing update in the Cost Estimate (Class 4) prepared during the same Stage 2 "Initial Planning".

6.3.9 Schedule Contingency

The project Planner, in consultation with the Planning Manager, should consider whether or not to include explicit schedule contingency. It is recommended, based on the level of project definition and information available at this stage, that explicit schedule contingency should be computed and included in the total project duration.

7.0 ATTACHMENT

1. EPM-S00-TP-000013 - Level 1 Schedule, Registration Phase Template

