

# Initial Schedule Development

**Effective Date:** January 19, 2010

**Status:** Revision 1

**Supersedes:** NA

**Document Owner:** Chief Engineer

## 1. Scope

This process applies to the development of all project schedules from Legislative approval through construction closeout. Project schedules include all project scope in the Pre-Construction and Right of Way phases. This process is a complement to the Initial Schedule Development Process Map.

## 2. Purpose

This document establishes a WSDOT standard methodology for the development of project schedules including all work in the Pre-Construction and Right of Way phases.

## 3. Roles and Responsibilities

The identified roles are provided as a guide to assigning the tasks included in the PMRS processes. Each region has the flexibility to delegate the role of Project Manager (and other functions) to the appropriate functional level to meet project and project office needs and to accommodate current and planned organizational structures.

The project team is comprised of the Project Engineer/Project Manager, the Team Lead/Project Control Specialist, members from the project office, Specialty Groups, Consultants (when applicable), and any others that are needed to deliver the project.

### 3.1 Regional Management

- Assign the project to the appropriate Project Engineer/Project Manager.
- Approve the Project Management Plan (PMP).

### 3.2 Project Engineer/Project Manager (PE/PM)

- Responsible for development of the overall project schedule that meets the Work Order Authorization (WOA) and milestone expectations and that includes all scope required as defined by the Legislature.
- Oversees the schedule and cost development process, defines the appropriate structure and level of detail and ensures that all project team members have input and endorse the schedule and cost as required by the Project Management Online Guide.

### 3.3 Team Lead/Project Control Specialist

- Work with the PE/PM to develop a work breakdown structure.

- Develop the detailed schedule and cost estimate as directed by the PE/PM and in compliance with related policies and processes.
- Develop schedule network including the addition/confirmation of the activities, durations, costs, constraints, milestones, control accounts and other required elements to fulfill the scope of the project.
- WSDOT Specialty Group involvement is critical at each stage of schedule and cost development.
- Endorse the baseline schedule and cost estimate.

#### 3.4 Regional Tools Administrator

- Work with the Team Lead/Project Control Specialist to create the project in the Project Management and Reporting System (PMRS)
- Develop the Enterprise Project Structure (EPS) / Work Breakdown Structure (WBS) based on project scope with input from the project team.

#### 3.5 Specialty Groups

- Participate in the development of detailed schedules and cost estimates that support project requirements and covers the complete scope of work to be provided.
- Work as a member of the project team to resolve schedule and cost issues.
- Specialty Groups include offices such as Environmental, Hydraulics, Traffic, Operations, Geotech, Bridge, Utilities, Design, Real Estate Services and any others that are needed to deliver the project.

#### 3.6 Consultants

- Participate in the development of detailed schedules and cost estimates that support project requirements and covers the complete scope of work to be provided as required by the contract specification.
- Work with the project team to resolve schedule and cost issues.

### **4. Initial Schedule Development Process Steps**

The following process steps are taken from the Initial Schedule Development Process Map. The sub-numbers listed below correspond to the numbered activities on the process map. For example, item 4.1 corresponds to activity 1 on the process map.

#### 4.1 Project Initiation

Regional Management:

- Assign the project to the appropriate Project Engineer/Project Manager based upon staff expertise and availability.

Project Engineer/Project Manager:

- Assign the project team lead based upon expertise and availability.

- Follow the WSDOT Project Management Process as described in the Project Management Online Guide:
  - Initiate and Align the project team includes selecting and assembling the project team; including a project kickoff meeting to introduce the project to the project team; which includes specialty groups, consultants and/or contractors. This step also includes identification of roles and responsibilities, measures of success and operating guidelines. Operating guidelines define how the PMRS tools will be used for the project.
  - The Plan the Work phase produces the Project Management Plan (PMP). The PMP documents the project performance baseline and the methods which are used by the project team to deliver the project; including a Risk Management Plan, Communication Plan, Quality Plan, Change Management Plan and Transition and Closure Plan. The level of detail is guided by the size and complexity of the project. Development of these plans must include discussion with all team members to secure their buy in and commitment to the project.
  - See the Internal Scope of Work Agreement Development Process.
  - See the Project Management Online Guide for additional detail <http://www.wsdot.wa.gov/Projects/ProjectMgmt/>

#### 4.2 Setup Project in PMRS

Regional Tools Administrator / Project Control Specialist:

- Create the project in the Project Management and Reporting System (PMRS)
- Check to see if a scoping project schedule has been developed that can be used as a starting point.
- If no scoping schedule is available; determine if a similar project or schedule template is available to use as a basis of the project schedule. The project will inherit the WBS included in the template. See Schedule Template Guidelines, use of a schedule template is optional.
- Project data such as WIN, Mileposts, SR, project codes, notebook topics, funding etc are manually entered.
- Title, work order, responsible organization, responsible manager, major milestones and dollars are auto-populated from CPMS once the WIN is identified.
- At a minimum develop a preliminary construction phase schedule consisting of construction phase milestones.
- Expand the construction phase schedule to include contract working days at approximately 60% design. The contract working day schedule may be used to validate Construction Engineering (CE) costs.

#### 4.3 Internal Scope of Work Agreement Development Process

Specialty Groups:

- See Internal Scope of Work Agreement Development Process and Map.

- Specialty Group should be involved early in the process to assist with the development of the WBS, identifying milestones, deliverables, control accounts, risks, and cost requirements.
- These activities run in parallel with the Team Lead/Project Control schedule development and cost estimate steps 4 to 6.

Consultants:

- Consultants should follow the process in the Consultant Service Procedures Manual M27-50.

**4.4 Develop Work Plan and WBS Based on Project Scope**

Regional Tools Administrator / Project Control Specialist:

- Develop the WBS based on project scope with input from the project team, including specialty groups and consultants.
- This is the starting point of the project. Whether starting from a template, copying an existing project or creating a new project the project team develops or revises the WBS to meet unique project needs.
- The Master Deliverables List (MDL) shall be used in conjunction with the Work Breakdown Structure (WBS) to ensure that the schedule reflects the project scope.
- WSDOT Enterprise Project Structure (EPS) / Work Breakdown Structure (WBS) guidelines and schedule template guidelines are available on the Project Management Web Portal.

**4.5 Select Applicable Milestones, Deliverables and Control Accounts**

Team Lead/Project Control Specialist:

- Select the applicable milestones (required and optional) and deliverables with input from the project team, including specialty groups and consultants.
- Group deliverables to establish control accounts.
- Estimate or confirm activity durations and costs; including those summary items from the Specialty Group and/or Consultant.
- Control account guidelines are available on the Project Management Web Portal.

**4.6 Build Schedule Logic**

Team Lead/Project Control Specialist:

- Refine logic ties to actual project requirements taking into account the significant components of work in each phase, adherence to established milestones and resource availability as appropriate.
- Activities are based upon input from the PE/PM, Project Team, Specialty Groups and Consultants - including the project management plan and available scoping documents.
- Check to ensure that there are no open ends in the schedule. This includes interfaces to WSDOT and non-WSDOT work.

- Best management practice requires limited to no use of constraints, build activities and logic to reflect actual project dynamics.

#### 4.7 Identify whether using Role/Resource or Expenses

Team Lead/Project Control Specialist:

- Determine whether to use role/resources or expenses for planned costs.
- Establish a cost estimate based on durations of actual work tasks included in the preliminary project schedule, and uses hourly cost rates for the projected team members.
- Specialty Groups and Consultants may provide summary level information as defined in the Internal Scope of Work Agreement or Consultant Agreement Development Process.
- Additional information regarding roles/resources and expenses can be found in the PMRS Primavera Scheduler training material.

#### 4.8 Review, Approve and Issue Draft Project Schedule and Cost Estimate

Project Engineer/Project Manager/Team Lead/Project Control Specialist:

- Review and approve the draft project schedule and cost estimate.
- Once the draft project schedule has been finalized, the PE/PM issues it to the project team, stakeholders, specialty groups and Consultants along with written requirements specifying deliverables, milestones, cost loaded control accounts and other project conditions as appropriate for project team review and comment.
- Resolve schedule and cost issues with the Team Lead/Project Control Specialist prior to issuance.

#### 4.9 Analyze Project Schedule and Cost Estimate; including work done by Specialty Groups and/or Consultants

Team Lead/Project Control Specialist:

- Schedule requirements and Work Order Authorizations (WOA) may go to multiple Specialty Groups or Consultants for input. Team Lead/Project Control Specialists, specialty groups or consultants must work together to understand the project scope and requirements so that they can develop a detailed schedule and cost plan to deliver the project.
- Collect and analyze the input received from all specialty groups and consultants, consolidate into the project schedule and assess impacts and resolve any issues with the specialty groups and consultants and the PE/PM. At a minimum, this analysis shall include the following elements:
  - Analyze Specialty Group and Consultant Schedule
  - Evaluate and confirm critical path and milestones
  - Identify and substantiate or correct “open ends”
  - Evaluate Ad dates/operationally complete dates – biennial considerations

- Identify and confirm costs
- Evaluate and confirm roles/resources or expenses
- Perform schedule recovery/optimization as necessary
- Perform cost and/or resource optimization as necessary
- Initiate change management as required
- Perform risk assessment of schedule and cost issues
- Perform QA/QC check of specialty group and Consultant input and impact analysis

#### 4.10 Analyze Project Schedule and Cost Estimate

##### Specialty Groups/Consultants:

- Schedule and cost requirements may go to multiple Specialty Groups or Consultants for input. Team Lead/Project Control Specialists, specialty groups or consultants must work together to understand the project scope and requirements so that they can develop a detailed schedule and cost plan to deliver the project.
- At a minimum, this analysis shall include the following elements:
  - Analyze their portion of the project schedule in relation to the overall project schedule.
  - Evaluate and confirm critical path and milestones
  - Identify and substantiate or correct “open ends”
  - Evaluate Ad dates/operationally complete dates – biennial considerations
  - Identify and confirm costs
  - Evaluate and confirm roles/resources or expenses
  - Perform schedule recovery/optimization as necessary
  - Perform cost and/or resource optimization as necessary
  - Initiate change management as required
  - Perform risk assessment of schedule and cost issues
  - Perform QA/QC check
- Specialty groups and consultants are performing work for several projects at any given time; they are expected to identify early starts or delays due to competing priorities and the time window that they can work on the subject project.

#### 4.11 Meet requirements?

##### Project Engineer/Project Manager/Team Lead/Project Control Specialist:

- Determine if the project schedule and cost estimate meets the legislatively mandated milestones and budget based on the project scope. If the project includes the establishment of the scope, then the project schedule can be used to determine an overall project timeline, aging and resource plan.
- Notify Program Management of any variances in scope, schedule and budget.

#### 4.12 Perform Risk Assessment

It is optional to use the functionality built into the PMRS tools to identify and manage risks, but the requirement is to follow Risk Management Plan guidance in the Project Management Online Guide.

**4.12.A Project Engineer/Project Manager**

- Identify new risks, perform risk assessment and document in the project management plan as required by the Project Management Online Guide.
- Gather input from specialty groups and consultants and assesses the project's risks.
- Determine if change management is required as a result of risk assessment

**4.12.B Team Lead/Project Control Specialist**

- Identify new risks, perform risk assessment and document in the project management plan as required by the Project Management Online Guide.
- Gather input from specialty groups and consultants and assesses the project's risks.
- Determine if change management is required as a result of risk assessment

**4.12.C Specialty Groups/Consultants**

- Identify new risks, perform risk assessment and document in the internal scope of work agreement and project management plan as required by the Project Management Online Guide.
- Determine if change management is required as a result of risk assessment

**4.13 Endorsed by Project Team, Specialty Groups, and Consultants**

Team Lead/Project Control Specialist/Specialty Groups/Consultants:

- Endorse the project management plan; including the project schedule and cost estimate as required by the Project Management Online Guide.

**4.14 Approved by Regional Management**

Regional Management:

- Approve the Project Management Plan (PMP), typically in an endorsement meeting. See Project Management Online Guide for more information.

**4.15 Issue Baseline Schedule and Project Aging Plan**

Project Engineer/Project Manager:

- Once project schedule issues are resolved, the PE/PM issues the project performance baseline schedule including baseline scope narrative, aging plan and endorsements by the Project Team. The project performance baseline reflects the expectations for the major milestones and establishes the plan for the activities to accomplish the milestones.

- 4.16 Notify Specialty Groups and Consultants of Approved Baseline  
Project Engineer/Project Manager:
- Notify the project team, including specialty groups and consultants, that the project performance baseline schedule and cost estimate is approved and issued.
  - Inform the project team of schedule maintenance requirements as defined in the Internal Scope of Work Agreement Process or Consultant Service Procedures Manual.
  - Work now commences and progress is measured against the work order authorization.
- 4.17 Schedule/Cost Recovery?  
Team Lead/Project Control Specialist:
- If schedule and/or costs do not meet requirements, determine if schedule/costs can be adjusted to fit within the work order authorization.
- 4.18 Schedule/Cost Recovery/Optimizing  
Team Lead/Project Control Specialist:
- If recovery is available, adjust schedule and/or costs accordingly in the PMRS tools.
  - Notify specialty groups and consultants of changes as needed.
- 4.19 Risk Assessment  
Team Lead/Project Control Specialist/ Specialty Groups/Consultants:
- Use the Project Risk Management Plan to review and identify new risks associated with those unrecoverable activities.
  - Team lead gathers input from specialty groups and consultants to assess the project's risks.
  - It is optional to use the functionality built into the PMRS tools to identify and manage risks, but the requirement is to follow Risk Management Plan guidance in the Project Management Online Guide.
- 4.20 Change Management Required?  
Project Engineer/Project Manager:
- Determine if a change is required to address schedule and/or cost issues and initiate the Change Management Process.
- 4.21 Change Management Process  
Project Engineer/Project Manager:
- For specialty groups refer to the Internal Scope of Work Agreement Change Management Process, as appropriate.
  - For Consultants refer to the Consultants contract and Consultant Service Procedures Manual



## 5. Term

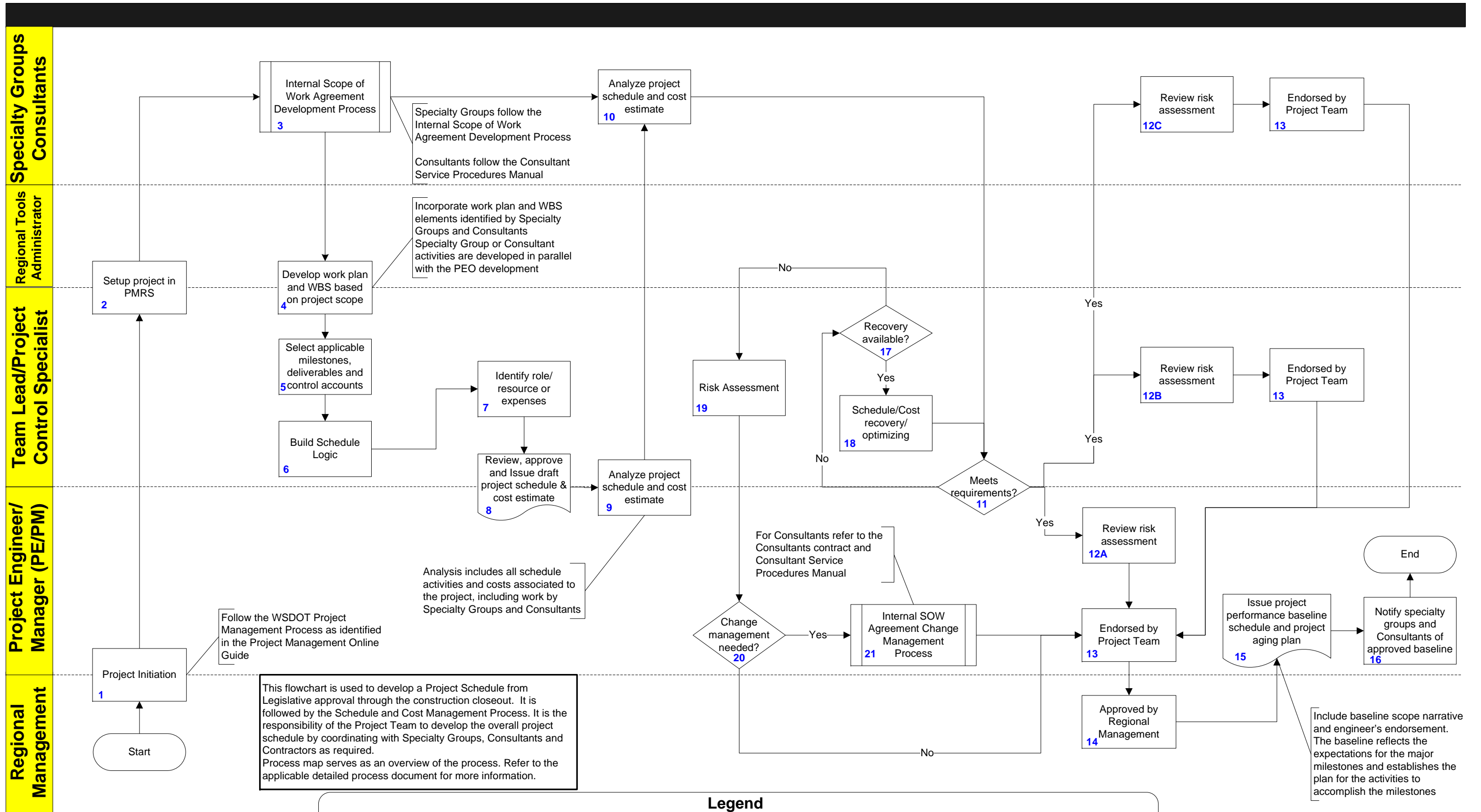
This process is effective immediately upon signature and continues in force until modified in writing by the Chief Engineer, or his/her designee.

## 6. Exemptions

Variance from this process requires the approval of the Chief Engineer, or his/her designee.

## 7. References

- 7.1 Executive Order Number: E 1032.01 – Project Management, July 1, 2008
- 7.2 Executive Order Number: E 1042.00 – Project Management and Reporting System, July 1, 2008
- 7.3 Project Management Web Portal. Copies of all PMRS policies, processes, procedures and guidance documents are available at: <http://wwwi.wsdot.wa.gov/Projects/PMRS>
- 7.4 Project Management Online Guide  
<http://www.wsdot.wa.gov/Projects/ProjectMgmt/>
- 7.5 WSDOT Enterprise Project Structure (EPS)/Work Breakdown Structure (WBS) Guidelines
- 7.6 Schedule Template Guidelines
- 7.7 PMRS Primavera Scheduler Training Manual, Version 3.0
- 7.8 Internal Scope of Work Agreement Development Process and Map
- 7.9 Consultant Service Procedures Manual M 27.50



The identified roles are provided as a guide to assigning the tasks included in the PMRS processes and procedures. Each region has the flexibility to delegate the role of Project Manager (and other functions) to the appropriate functional level to meet project and project office needs and to accommodate current and planned organizational structures.

