Washington State Department of Transportation

Project Cost Estimate Creation, Update, Review and Approval

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Document Owner: Chief Engineer

1. Scope

This process applies to the creation, review, update and approval of planning, scoping, design and construction project cost estimates. This process is a complement to the Project Cost Estimate Creation, Update, Review and Approval Process Map.

2. Purpose

This document establishes a WSDOT standard methodology for the creation, review, updates and management of project cost estimates.

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.

Estimates are traditionally developed at WSDOT in project offices under the supervision of a Project Engineer or Project Manager. The regions provide estimating expertise, creation, support and review functions. Headquarters provides expertise, review and policy development for estimating.

3.1 Project Engineer/Project Manager (PE/PM)

- Request development of cost estimate.
- Initiate and request estimate updates.
- Set schedule for estimate updates (quarterly at a minimum).
- Review estimates prepared by Estimators.
- Participate in determining risk and determining cost range.
- Determine communication approach.
- Endorse estimates and obtains management approval.
- Initiate Change Management Process as necessary.

3.2 Estimators (design team, scoping team, or estimating group)

- Develop estimates based upon project information and schedule as requested by Project Engineer/Manager.

- Determine estimate basis.
- Prepare base estimate.
- Document basis of estimate, assumptions and risk.
- Participate in estimate review and bid reviews.
- Participate in determining risk and determining cost range.
- Review and update estimates.

3.3 Regional Management

- Application of inflation to project cost estimates.
- Approve and support estimate communication approach.
- Approval of final project cost estimates.

3.4 WSDOT Specialty Groups

- Develop estimates based upon project information and schedule as requested by Project Engineer/Project Manager.
- Determine estimate basis.
- Prepare base estimate.
- Document basis of estimate, assumptions and risk.
- Participate in estimate review and bid reviews.
- Participate in determining risk and determining cost range.
- Review and update estimates

4. Project Estimate Creation, Update, Review and Approval Process Steps

The following process steps are taken from the Project Estimate Creation, Update, Review and Approval Process Map. The sub-numbers listed below correspond to the numbered activity on the process map. For example, item 4.1 corresponds to activity 1 of the process map.

This process was developed from the WSDOT Cost Estimating Manual for WSDOT Projects (M3034.02). Please refer to the Cost Estimating Manual for more detailed information on cost estimating.

4.1 Request Cost Estimate or Update

Project Engineer/Project Manager:

- Plan for and requests an estimate or update.
- Provide an expected date of estimate delivery in accordance with the design contract.

4.2 Determine Estimate Basis

4.2.A Estimators:

- For a more complete description of this activity please refer to the Cost Estimating Manual for WSDOT Projects.

- Receive the request, gathers scope, schedule information, and project documents which can be based on planning description, scoping documents, preliminary plans or final plans and specifications.
- Determine which specialty groups are required for this estimate and contacts them for required information.
- Contact the construction project office administering the construction contract; they have knowledge of field conditions and lessons learned under similar type projects that may impact the estimate.
- If necessary estimator visits the site with appropriate personnel (designer, maintenance, RES or others) to determine unique project characteristics or conditions.
- If information is insufficient, request additional information or clarification from Project Engineer/Manager.
- Organize the documents, data and other information that describe project scope into the project estimate file.
- Determine applicable estimating technique(s) for various parts of the estimate per the Cost Estimating Manual for WSDOT Projects.
- Document the estimate basis and assumptions using Basis of Estimate Template.
- Communicate to Project Engineer/Manager schedule for estimate process.

4.2.B Specialty Groups:

- For a more complete description of this activity please refer to the Cost Estimating Manual for WSDOT Projects.
- Receive the request, reviews scope, schedule information, and project documents, if information is insufficient, request additional information or clarification from Estimator.
- Determine applicable estimating technique(s) for their part of the estimate per the Cost Estimating Manual for WSDOT Projects.
- Document the estimate basis and assumptions using Basis of Estimate Template.
- Communicate to Estimator schedule for estimate process.

4.3 Sufficient Information

Estimators:

- Determine if there is sufficient information to produce an estimate.
- If not, Estimator requests additional information from Project Engineer/Manager or specialty group.

4.4 Provide Additional Information as Needed

Project Engineer/Project Manager:

- Discuss additional needs and provide documents or information requested

4.5 Prepare Base Estimate

4.5.A Estimators:

- Determine the applicable estimating techniques (parametric, historical bid based, cost based, or risk based) for each part of the estimate per the Cost Estimating Manual for WSDOT Projects.
- Base cost estimate is summarized to include all costs (PE, RW, CN (including CE)) in current year dollars not including contingency.
- Estimate information is developed and documented in Basis of Estimate Template.
- Project estimate file is updated with this information.

4.5.B Specialty Groups:

- Develop and document estimate information in Basis of Estimate Template.
- Provide estimate to Estimator.

4.6 Review Base Estimate

Project Engineer/Project Manager and Estimator and Specialty Groups (as required):

- Determine the level of estimate review required (internal, region, HQ, external (independent).
- Estimator, Project Engineer/Manager and appropriate others review the base estimate.
- Review process covers: estimate basis and assumptions, verifies completeness of scope, schedule, appropriate use of estimate information and data and estimate documentation package.
- Current estimate is reconciled with previous estimate(s) and differences explained.
- Estimate package is prepared with revised estimate and updated Basis of Estimate.
- Project estimate file is updated with this information.

4.7 Review Comments Resolved?

Project Engineer/Project Manager and Estimator:

- Project Engineer/Project Manager and Estimator work together to resolve review comments.
- Parts of the estimate may have to be redone to resolve issues.
- All revisions are clearly documented and made part of the estimate file.

4.8 Is Risk Based Estimate, CRA or CEVP Needed?

Project Engineer/Project Manager:

- Decide if risk based estimating is appropriate for the project.
- Determine level of risk analysis required per WSDOT policy for Cost Risk Assessment.

- If CRA or CEVP is required, PE/PM contacts the Strategic Analysis and Estimating Office to schedule a workshop.

4.9 Determine Risk and Cost Range

Project Engineer/Project Manager and Estimator:

- Determine the level of risk analysis required (CEVP, CRA, Self Modeling Spread Sheet, other) per WSDOT policy.
- Apply contingency amounts per Plans Preparation Manual.
- Identify risk; perform risk analysis and the cost impact(s) of project risks is added to the base cost to derive a total project cost range.
- Develop and implement a risk management plan for project.
- Risk management plan is added or updated to the estimate package and the Project Management Plan.

4.10 Apply Contingency per Plans Preparation Manual and Cost Estimating Manual for WSDOT Projects

Project Engineer/Project Manager:

- Apply contingency per Plans Preparation Manual.
- Determine reasonable cost range per Cost Estimating Manual.

4.11 Final Estimate and Cash Flow Estimate by Year

Project Engineer/Project Manager and Estimator:

- Estimate document package is complete.
- All costs to complete the project are included (PE, RW, CN, including CE).
- All costs are in current year dollars.

4.12 Assemble Approval Package

Estimator:

- Approval package including the estimate summary and communication information is prepared and submitted to PE/PM for endorsement.

4.13 PE/PM Endorsement?

- Project Engineer/Manager endorses estimate.
- Submit estimate to Regional Management for application for inflation.

4.14 Program Management Application of Inflation

Regional Management:

- Estimate is submitted to Region Program Management for application of inflation.
- Program Management returns estimate in Year of Expenditure to PE/PM for use.

4.15 Determine Estimate Communication Approach

Regional Management/Project Engineer/Project Manager:

- Determine stakeholder needs for project cost information.
- Appropriate methods to communicate project scope, cost and risks are developed.
- Estimate communication package is prepared for approval.
- See Cost Estimating Manual for WSDOT Projects M 3034.02

4.16 Region Approval

Project Engineer/Project Manager and Regional Management:

- Project Engineer/Manager provides complete estimate package (estimate, risk analysis, risk management plan, and estimate communication plan) to appropriate management for approval.
- Following approval, estimate information is released and official estimate is entered into reporting system.

4.17 Determine if Change Management is Needed?

Project Engineer/Project Manager:

- Determine if change management is needed per Project Control and Reporting Manual.
- If change management is needed, the Project Engineer/Project Manager provides information for the change management process.

4.18 Change Management Process

Project Engineer/Project Manager:

- Initiate formal change management process; See Project Control and Reporting Manual M 3026.02. (This manual is under revision and will be renamed the Capital Program Development and Management (CPDM) Manual.
- Initiate Internal Scope of Work Agreement Change Management Process as appropriate.

4.19 Change Approved?

- If change is approved, the estimate becomes the official WSDOT estimate.
- If change is not approved, the package is returned to the PE/PM for scope assessment.

4.20 PE/PM Scope Assessment

Project Engineer/Project Manager:

- Evaluate scope, schedule and budget, after changes are made, PE/PM submits the new package to estimating.

4.21 New Estimate Identified as Official WSDOT Project Estimate

Estimator:

- File a copy of the estimate and comments and inputs the total into the database indicating that it is to be reported as the official estimate.

5. Term

This standard 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 approval of the Chief Engineer, or his/her designee.

7. References

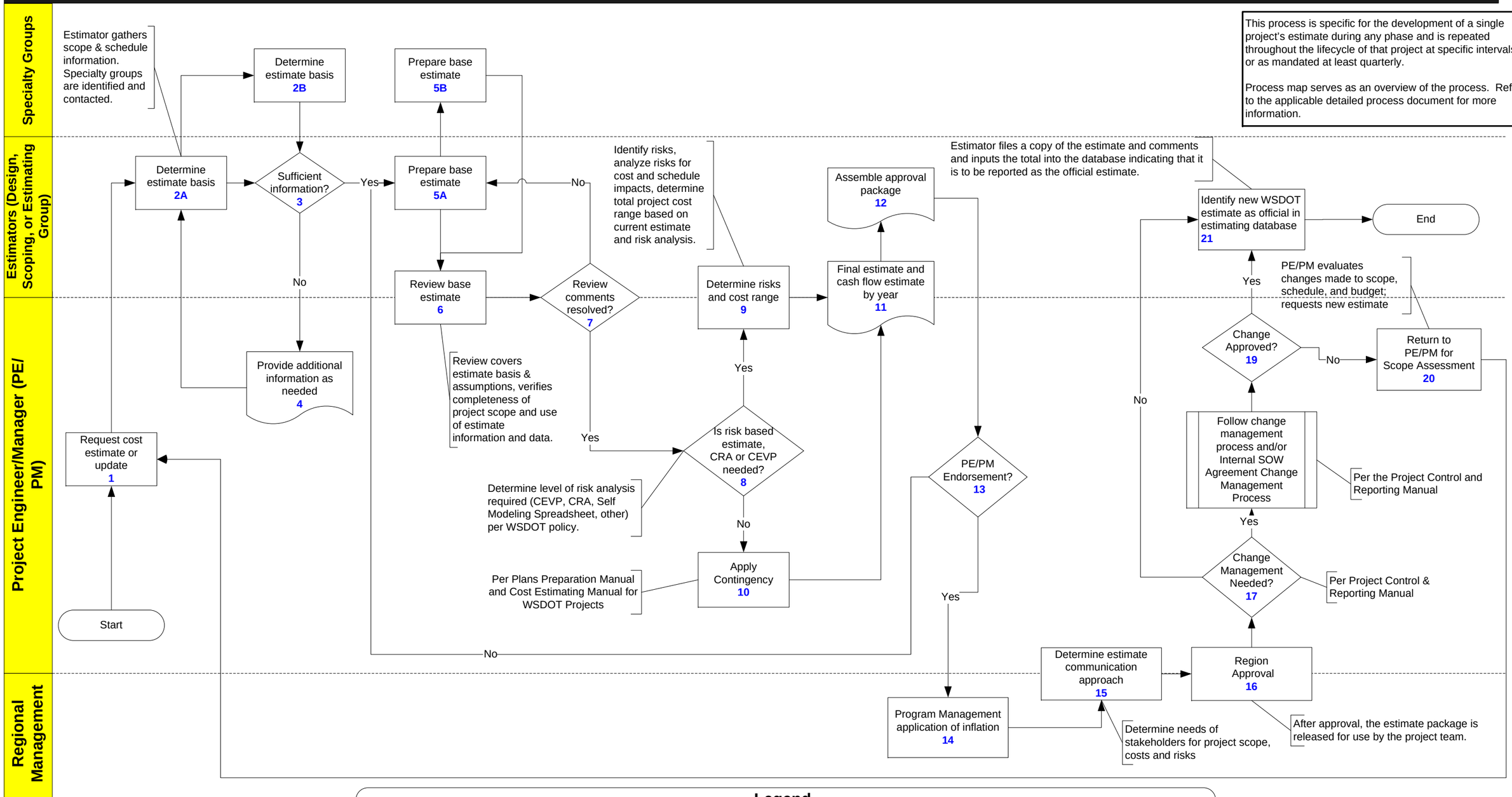
7.1 Executive Order Number: E 1032.01 – Project Management, July 1, 2008
7.2 Executive Order Number: E 1042.00 – Project Management and Reporting System, July 1, 2008
7.3 Executive Order Number: E 1053.00 – Project Risk Management and Risk Based Estimating
7.4 Project Management Web Portal - Copies of all PMRS policies, processes, procedures and guidance documents are available here: http://wwwi.wsdot.wa.gov/Projects/PMRS
7.5 Project Cost Estimate Creation, Update, Review and Approval Process Map
7.6 Plans Preparation Manual (M22.31)
7.7 Cost Estimating Manual for WSDOT Projects (M 3034.02), July 2009
7.8 For additional estimating and CRA/CEVP information see the Strategic Analysis and Estimating Office web site: http://www.wsdot.wa.gov/Design/SAEO/
7.9 Basis of Estimate Template is found at: http://www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/Information.htm
7.10 Project Control and Reporting Manual M 3026.02. (This manual is under revision and will be renamed the Capital Program Development and Management (CPDM) Manual.

Washington State Department of Transportation

Project Cost Estimate Creation, Update, Review & Approval Process

This process is specific for the development of a single project's estimate during any phase and is repeated throughout the lifecycle of that project at specific intervals or as mandated at least quarterly.

Process map serves as an overview of the process. Refer to the applicable detailed process document for more information.



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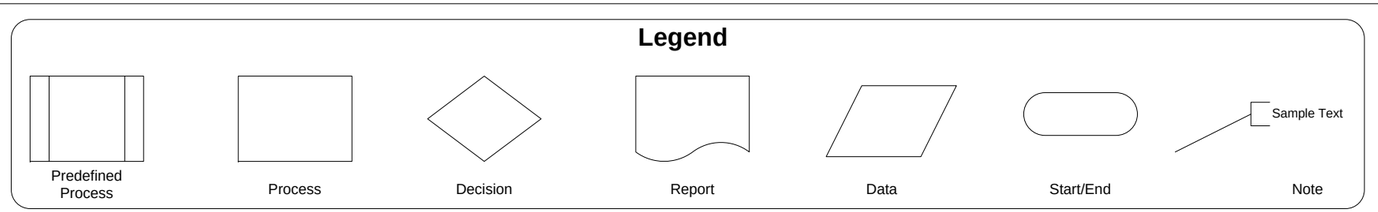

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