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305.01 Introduction

The Washington State Department of Transportation (WSDOT) embraces project management best practices to deliver quality projects within the project scope, on schedule, and within budget. WSDOT's project management process provides an organized approach to building collaborative teams. Resources including methods, processes, tools, templates, and examples.

This chapter serves as a reference and gives a brief overview of project management resources. It outlines the project management steps. Project management includes strategies to manage:

- Teams – identify roles and responsibilities; align the teams' project goals.
- Collaboration – engage internal and external stakeholders and participants.
- Deliverables – identify what will be produced. See the WSDOT Master Deliverables List and the Deliverables Expectations Matrix.
- Tasks – plan and organize the sequence, levels of effort, and persons responsible for producing deliverables.
- Schedules – determine durations, critical dates, task linkages, and critical path(s).
- Costs – plan and control the project budget at each project stage.
- Risks – determine the threats to and opportunities for the project and plan accordingly.
- Integration and coordination of processes – for efficiency and eliminating waste.
- Change – describe the reason for, make decisions during, approving, and reporting change.
- Quality – determine the metric and target; monitor to assure, control, and verify quality.
- Communication – Constant communication amongst and between the project team, stakeholders, and external parties based on roles, responsibilities, and agreed to project goals. Inform sponsors and decision-makers.

Effective project delivery includes a strong commitment to project management best practices and principles. Another major factor in successful project delivery is building trust through communication about the project within, and external to, the design team.

Executive Orders [1032](#), [1038](#), [1053](#), and Policy Statement 2047 ensure a consistent process for practical design, project management, and risk management statewide.

305.02 Project Management

The project management process provides the framework for project managers and team members to deliver quality projects on time and within the scope and budget. Project management resources are consistent with a practical design approach and offer structure for organizing and aligning collaborative teams to engage stakeholders and the community.

Exhibit 305-1 shows the project management process used to deliver projects. Each of the five parts shown is briefly described in the following sections.

Exhibit 305-1 WSDOT Project Management Process



305.02(1) *Initiate (and Align)*

Teams deliver projects, hence one of the first orders of business in project management is to initiate and align the team. Our projects are successful because of the effectiveness of the team delivering them. To that end, initiating and aligning the team is an important early accomplishment. Aligning the team establishes communications and responsibilities of the project manager and team. The Initiate and Align worksheet is a tool that can be helpful in this phase.

305.02(2) *Plan the Work*

Plan the work is the portion of the project management process that produces the Project Management Plan (PMP).

The PMP defines the project performance baseline—including deliverables, schedule and budget, and management methods. As the project manager and project team plan the work, they integrate and coordinate processes in a manner that optimizes resources and reduces waste. For example, if a project requires an Access Revision Report (ARR), National Environmental Policy Act (NEPA) documentation, or a Value Engineering study (VE), the project manager and team coordinate and align these efforts. This way they make use of common information and subject matter experts.

The performance baseline documents the team goals for project performance. The performance baseline includes:

- Scope – the deliverables to be produced by the project team.
- Schedule – the logical sequence of work and related milestones.
- Budget – the amount of money programmed for the project.
- Risk – uncertainty that affects project objectives.

The PMP includes management plans for Risk, Change, Communication, Quality, Transition, and Closure. These plans align the team toward uniform goals. A complete PMP considers how the project will start, be executed, monitored, controlled, and close.

305.02(3) Executing (Working the Plan)

During execution, the team, subject matter experts, and others are coordinated with as necessary to produce deliverables. The project manager and project team ensure the integration of various project development and design processes that are optimal for completing the required work and meeting the performance objectives.

305.02(4) Monitoring and Controlling

As the project team executes the work, progress is tracked and reported to the project manager. If changes or course corrections are required, the project manager takes appropriate action in a timely manner. As the team monitors progress, they may need to take action that includes: developing and implementing recovery strategies, updating the PMP, implementing risk response strategies and updating the risk assessment. Obtain change request approvals as necessary and ensure the quality plan is being implemented. Report on the performance of the team and communicate with management, staff and team.

305.02(5) Closing (the Project)

At the end of the project, it is helpful to review lessons learned and reward and recognize the team for successes. Capturing lessons learned and recognize people occurs throughout the project; however, the closure phase provides an opportunity to finalize this and bring it to conclusion. As a project comes to an end it will either close or transition to a new phase. The project manager performs the closure or transition in an orderly and appropriate manner. This involves demobilizing and reassigning staff and transferring resources or facilities.

Address the closure and transition phase of the project management process during creation of the PMP and the work plan.

Project team planning and transitions can be aided by using the Deliverable Expectation Matrix which provides a range of project development deliverables and the general order in which they will occur (see Section 305.03(2)).

A project is complete after transition and closure is accomplished, and the project manager is released from responsibility for the project.

305.03 Project Management Tools

For an overview of project management, with links to the WSDOT project management process and tools for delivering the WSDOT Capital Construction Program, see the following website:

 www.wsdot.wa.gov/projects/projectmgmt

305.03(1) **WSDOT's Master Deliverables List (MDL)**

The Master Deliverables List (MDL) is a comprehensive list of project elements down to the deliverable level. This list serves as a starting point for creating the project's Work Breakdown Structure (WBS) by adding or removing elements to match the specific project. This ensures:

- Appropriate project deliverables are included in the PMP and schedule; and
- A common vocabulary and a map of the agreed to strategy that spans project teams and specialty/support groups in the region and Headquarters (HQ).

For additional information, see the MDL:

🔗 www.wsdot.wa.gov/projects/projectmgmt/masterdeliverables.htm

305.03(2) **Deliverables Expectations Matrix**

The Deliverables Expectation Matrix (DEM) communicates typical expectations for project deliverables and helps establish mutual understanding of these expectations. The DEM offers "at-a-glance" information about an extensive list of deliverables developed during the entire project development process from planning to design phase closure. Coordinate with appropriate support groups and other subject matter experts for deliverable details specific to the project.

The DEM is intended to help scope, schedule, budget, and execute the work needed for each needed project deliverable along with the benefits of Quality Control, Quality Assurance, and Quality Verification. It also shows where the deliverable fit in the following project development milestones:

- Planning (corridor sketch strategies)
- Scoping Pre 30%
- Geometric design review / design approval (~ 30% design level)
- Constructability review (~60 design level)
- Pre-contract review (~90% design level)
- Contract ready final review (~100% design level)
- Contract ad and award (bid letting)
- Design Phase Close Out (transition to construction)
- Construction

For additional information, see the DEM:

🔗 www.wsdot.wa.gov/publications/fulltext/design/demintro.pdf

305.03(3) **Project Management and Reporting System**

The Project Management and Reporting System (PMRS) is a tool for effective and efficient management of design project schedules, resources, and costs. The following website provides tools for project planning, WBS development, scheduling, and resource and cost management:

🔗 <http://wwwi.wsdot.wa.gov/planning/cpdmo/pmrs.htm>

305.04 Project Risk Management

Project risk management is required for every WSDOT project. WSDOT has developed a world-renowned program for project risk management that is scalable and effective. [Executive Order 1053 “Project Risk Management and Risk-Based Estimating”](#) offers direction and general information about project risk management at WSDOT. [Exhibit 305-2](#) summarizes project risk management requirements. Project managers may choose to use a higher level process than the required process.

Exhibit 305-2 Minimum Project Risk Management Process based on project size

Project Size (\$M)	Required Process*
Less than \$10M	Qualitative spreadsheet ^[1] .
\$10M to \$25M	Informal workshop using the self-modeling spreadsheet ^{[1][3]}
\$25M to \$100M	Cost Risk Assessment (CRA) workshop ^{[1][2]}
Greater than \$100M	Cost Estimate Validation Process® (CEVP®) workshop ^[2]

- [1] In some cases, it is acceptable to combine a Value Engineering Study with a Risk-Based Estimating Workshop.
- [2] Projects \$25 million and over should use the self-modeling spreadsheet in the scoping phase of the risk-based estimating process, followed up by the more formal CRA or CEVP® process during the design phase.
- [3] An informal workshop is composed of the project team (or key project team members); other participants may be included as the Project Manager/project team deem necessary.

* Project Managers can use a higher-level process if desired.

Proactive risk management is an integral part of project management that monitors projects to determine, document, and, account for risks and uncertainty. Knowing the risk triggers, the risk probabilities and impacts allows a project team to develop risk strategies that benefit the efficiency of a project through the design and construction stages.

For more information on risk planning and risk management, see:

www.wsdot.wa.gov/publications/fulltext/cevp/projectriskmanagement.pdf

For more information on risk assessment, see:

www.wsdot.wa.gov/projects/projectmgmt/riskassessment/

Sound project risk management begins with a defined project scope, estimated cost, and schedule commensurate with the current level of development. To that end, there are several WSDOT sources for cost estimating guidance, including:

- Strategic Analysis and Estimating: <http://www.wsdot.wa.gov/Design/SAEO/>
- Estimating Information
www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/Information.htm
- Cost Estimating Manual www.wsdot.wa.gov/publications/manuals/m3034.htm

Document each estimate review in the Project File, and clearly show any changes made to the estimate as a result of the review.

305.04(1) Risk Assessment Timing

Timing matters. Risk analyses must be coordinated with other project development activities, especially Value Engineering.

Optimizing the timing of the initial risk analysis maximizes the opportunity to identify and implement effective risk response actions. Subsequent updates to the risk assessment can be scheduled appropriately based on the specific needs of the project.

1. Planning / pre-scoping

An early risk assessment helps refine expectations and evaluate alternatives. It also shows the importance of risk management through the life of the project.

2. Scoping Phase

Early in preliminary engineering is a good time to consider project risks. At the conclusion of the risk assessment there are clearer expectations with regard to project cost and schedule and time to find innovative ways to respond to the risks.

3. Start of Design

A risk assessment informs the project delivery method selection. It is conducted prior to final decision on delivery method (see the Project Delivery Method Selection Guide, PDMSG). At the start of design, the project scope and preliminary costs have been established and major design decisions have been made. Some Plans, Specifications, and Estimates (PS&E) activities may have begun, and coordination with support groups and subject matter experts is underway. At this stage, the project scope, costs, and schedule should be updated. This is a time to update the risk assessment as well. There is opportunity to focus on the technical issues of the design elements.

4. Design Approval

After Design Approval, most of the important project decisions have been made and the opportunity to affect the design is limited. The risk analysis update can assess the risk profile of the project as it has evolved. The g may focus on constructability, construction sequencing, staging, traffic control, and significant design issues.

305.04(2) Risk Response and Value Engineering

An effective tool to generate risk response actions is Value Engineering (VE). See Design Manual Chapter 310 and the Project Risk Management Guide. Exhibit 305-3 illustrates the natural complementary features of Project Management and VE.

Exhibit 305-3 Project Management and Value Engineering

Alignment of Value Engineering (VE) to PMBOK®

The tools and techniques of VE align with, and can enhance, Project Management as defined in the PMBOK® Guide. Consider the following ways VE and Project Management work together:

<u>Initiate and Plan the work</u>	<u>Execute and Monitor</u>	<u>Close</u>
<u>Clarify vision and refine scope</u> <u>Identify/verify quality measures</u> <u>Promote innovation</u> <u>Enhance project function</u>	<u>Validate business case</u> <u>Implement value recommendations</u> <u>Coordinate with stakeholders</u> <u>Measure Quality</u>	<u>Validate benefits</u> <u>Lessons learned for quality</u>

305.05 References

305.05(1) Federal/State Laws and Codes

23 United States Code (USC) 106, Project approval and oversight

305.05(2) WSDOT Policies

WSDOT Design Manual

🔗 <https://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm>

Directives, Executive Orders, Instructional Letters, Manuals, and Policy Statements

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/default.htm>

Executive Order E 1032, Project Management

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1032.pdf>

Executive Order E 1038, Enterprise Risk Management

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1038.pdf>

Executive Order E 1053, Project Risk Management and Risk Based Estimating

🔗 www.wsdot.wa.gov/publications/fulltext/cevp/1053policy.pdf

Executive Order E 1090, Moving Washington Forward: Practical Solutions

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1090.pdf>

Executive Order E 1096, WSDOT 2015–17: Agency Emphasis and Expectations

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1096.pdf>

Executive Order E 1082, Business Practices for Moving Washington

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1082.pdf>

Policy Statement P 2047.00 "Estimating Project Budget and Uncertainty"

🔗 <http://wwwi.wsdot.wa.gov/publications/policies/fulltext/2047.pdf>

Project Delivery Memos

🔗 www.wsdot.wa.gov/design/projectdev/memos.htm

305.05(3) WSDOT Project Management References

Project Management Guide:

<http://www.wsdot.wa.gov/Projects/ProjectMgmt/OnlineGuide/ProjectManagementOnlineGuide.htm>

Project Risk Management Guide:

www.wsdot.wa.gov/projects/projectmgmt/riskassessment/default.htm

Cost Estimating Manual for Projects:

<http://www.wsdot.wa.gov/publications/manuals/fulltext/M3034/EstimatingGuidelines.pdf>

Project Management Glossary:

www.wsdot.wa.gov/publications/fulltext/projectmgmt/pmog/pm_glossary.pdf

Glossary for Cost Risk Estimating Management:

<http://www.wsdot.wa.gov/publications/fulltext/CEVP/Glossary.pdf>

A NOTE ABOUT THE FUTURE

WSDOT Project Management is consistent with Project Management Institute, PMI best practices per 6th edition of the Project Management Body Of Knowledge, PMBOK.

PMI Plans to release the 7th Edition of PMBOK in the 4th Quarter of 2020. A number of changes are anticipated in the new release. WSDOT will and review and ensure that our project management approach continues to represent best practices.