

Project Delivery Directive

Number: PDD-09R1

TO Project Delivery Employees

References: Project Risk Management Handbook

Effective Date: October 1, 2020

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Review by: October 1, 2022

Title Project Risk Management

Directive

Proactive risk management shall be applied to Capital Outlay program projects for which Caltrans has delivery responsibility. The minimum risk management requirements should be based on the Scalability Level table shown below.

Scalability Level	Project Capital Cost Estimate (Construction and R/W)	Risk Management Requirements
0	Minor B projects	None
1	Minor and Major projects within Minor A limits	Risk Register with qualitative risk analysis optional
2	Greater than Minor A limit to \$75M	Risk Register with deterministic or probabilistic quantitative risk analysis
3	Greater than \$75M	Risk Register with probabilistic quantitative risk analysis

Project Managers, in consultation with the project development team (PDT), may choose a higher or lower scalability level based on the complexity of the project. An approval from the District Deputy Director for Program/Project Management (Single Focal Point) is required for using a lower scalability level.

Following is a partial list of factors that the PDT should consider in determining a project's complexity when adjusting the risk scalability level:

- Scope
- Environmental and R/W impacts
- Utility conflicts and impacts
- Political/community sensitivity
- Project location
- Sponsor's sensitivity to cost and/or schedule
- Stakeholders of the project
- Duration of the project
- New type of design or innovative technology
- Alternative project delivery methods

The risks identified in the Risk Register shall be updated and managed throughout the entire project lifecycle, this includes updating the risk reserve and documenting the responses implemented with the resources used when a risk occurs. The project's Risk Register shall be certified by the project delivery deputies, or their delegates, indicating that they have reviewed the risks and agree that the risks are being managed to the greatest extent possible by the PDT and the risk owners. Risk Certification shall take place prior to:

- Approving the Project Initiation Document (PID - M010),
- Approving the Project Report, Approval and Environmental Document (PA&ED - M200),
- Achieving Ready to List (RTL - M460),

Additionally, individual risks shall be continuously updated or retired as appropriate, but at a minimum prior to:

- Approving the Project Report (PA&ED - M200),
- Achieving Ready to List (RTL - M460).
- Achieving Construction Contract Acceptance (CCA - M600),
- Achieving Final Project Closeout (M800)

Prior to M800, all individual risks shall be retired.

Background

Every project has risks, regardless of project size or complexity. Risk is defined as an uncertain event or condition that, if it occurs, has a negative (threat) or positive (opportunity) effect on at least one project objective (cost, schedule, scope and/or quality). The objectives of Project Risk Management (PRM) are to increase the likelihood and impact of positive events and decrease the likelihood and impact of negative events in the project. PRM minimizes surprises that impede successful project delivery through effective communication of risks throughout the delivery process.

Project delivery success can be increased by establishing and maintaining a Risk Register over the project lifecycle. The Risk Register communicates to the project stakeholders throughout the project delivery phases that the project's risks and responses are known, understood and managed.

The Project Risk Management Handbook is the user guide for implementing PRM across all phases of project delivery. In addition to the handbook, risk management training and subject matter experts are available to assist project teams in successfully implementing project risk management.

Definitions

Project Risk Management (PRM) is a process of planning, identifying, analyzing, communicating, managing and responding to project risks through all phases of project delivery to optimize the chances of project success.

Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.

Quantitative Risk Analysis is the process of numerically analyzing the effect that cost and/or schedule related risks have on the overall project objectives. Quantitative risk analysis can primarily be performed in two different ways: deterministic or probabilistic.

Deterministic Quantitative Risk Analysis uses calculations to produce a single estimate from the effect of the risk and response efforts.

Impact and probability values are assigned for discrete risks to determine what the impacts might be for each risk.

Probabilistic Quantitative Risk Analysis is a more sophisticated and comprehensive method that uses a Monte Carlo style simulation to estimate the effect of combined risks and response efforts. This method produces levels of confidence for the total project cost and schedule.

Retired risks are those risks that no longer have an unknown potential impact on the project, regardless of whether they have triggered or not.

Risk is an uncertain event or condition that, if it occurs, has a negative (threat) or positive (opportunity) effect on at least one project objective (cost, schedule, scope and quality).

Risk Certification is approval by district management at established checkpoints that they have reviewed the project risks documented in the Risk Register and agree that they have been managed to the greatest extent possible by the PDT.

Risk Owner is the individual who owns, updates, manages, and statuses the identified risk(s) and is responsible for implementing the planned risk response actions until the risk is retired.

Risk Register is a document that contains a list of identified risks specific to the project, the results of a qualitative risk analysis and/or a quantitative risk analysis, the risk owners and an agreed-upon risk response strategy.

Scalable provides the level of effort that is appropriate to the project depending on its size and complexity.

Risk Breakdown Structure (RiBS) is a hierarchically organized depiction of the identified project risks arranged by risk category and subcategory that identifies the various areas and causes of potential risks.

Risk Reserve is the calculated amount of funds or time needed in addition to the base estimate to cover the unexpected costs or schedule delays resulting from occurrence of uncertain events.

Monitor and Control Risks is the process of implementing risk responses plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating the risk process throughout the project life-cycle.

Responsibilities

Deputy Director, Project Delivery (Chief Engineer):

- Issues PRM policy.

District Directors:

- Ensure that PRM is implemented.
- Appoint District Risk Management Coordinator(s).

Chief, Division of Project Management:

- Leads, champions, sponsors and implements PRM by developing and maintaining, policies, guidance (including the Project Risk Management Handbook), procedures, practices, training and expertise.
- Ensures consistent application of PRM practices throughout all project phases

Chiefs, Divisions of Construction, Design, Engineering Services, Environmental Analysis, Right of Way and Land Surveys, Maintenance and Planning:

- Ensure that PRM requirements are incorporated and maintained in appropriate guidance and manuals.
- Work collaboratively to ensure that risks are communicated, managed and certified across the entire project life-cycle.
- Work collaboratively to ensure that PRM is implemented statewide.

Deputy District Directors and DES Deputy Division Chiefs:

- Ensure staff are communicating, managing and updating risks throughout the project lifecycle.
- Provide Risk Certification at the checkpoints accepting the disposition of risks.

Deputy District Directors of Program/Project Management (Single Focal Points):

- Ensure Project Risk Managers comply with PRM.
- Approve exceptions to PRM requirements.
- Support the District Risk Management Coordinators and Project Risk Managers and champions, and sponsors.
- Implements PRM by developing and maintaining policies, guidance, procedures, training and expertise within the districts.

Project Managers:

- The Project Manager will assume the responsibilities of the Project Risk Manager unless a dedicated Project Risk Manager is assigned to the project.
- Promote and direct risk management for the project.
- Inform management about risk management results, major issues and concerns.
- Track and monitor the effectiveness of risk response actions.
- Take lead role in obtaining Risk Certification at required milestones.
- Document new risks in the Risk Register, when identified.
- Assign committed resources to Functional Groups when a risk occurs.
- Document lessons learned.

Project Risk Managers:

- Districts may choose to have dedicated Project Risk Managers who will assist the PMs and/or District Risk Management Coordinators in all PRM related activities.
- Report to the Project Manager on all matters related to risk management if the PM is not functioning in this role.
- Determine the project's Risk Register requirements based on project capital cost estimate and complexity with input from the PDT.
- Request exceptions to project risk management requirements.
- Ensure the project Risk Register is populated and maintained with risks developed by functional units and the PDT.
- Ensure proactive response to all threats and opportunities that will impact the successful delivery of the project.
- Produce risk management reports for sponsors.
- Schedule and conduct project risk meetings.
- Ensure project risks are classified according to the appropriate RiBS category.
- Document lessons learned.
- Retire risks when they are no longer active.

HQ and District Risk Management Coordinators:

- May function as the Project Risk Manager.
- Assist Project Managers in implementing PRM requirements.
- Provide expertise, direction and assistance.
- Obtain expert services as needed.
- Document and share risk management best practices with district project delivery staff.
- Provide collaboration between HQ and Districts.

- Provide input to update the Project Risk Management Handbook as well as this Project Delivery Directive.
- Document lessons learned.

First-line Supervisors:

- Review all risks throughout the project lifecycle.
- Support the PDT members in the implementation of the risk response strategies.

Project Delivery Team (PDT) Members:

- Identify and assess risks, identify the risk owner, develop proactive risk responses, and ensure that the response strategy is followed through.
- Document lessons learned.

Risk Owners:

- Commit to risk responses documented in the Risk Register
- Review and update the risk responses when a risk occurs or when a risk is mitigated
- Implement the risk response actions and report to the PDT for inclusion in risk management updates.
- Document the resources used for mitigating a risk
- Communicate status of risks to the PDT.
- Document lessons learned.
- Recommends that the risk should be retired.

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Date Signed