Managing Risk to Reduce Construction Claims
(And Improve Project Success)
Presented by Renee Hoekstra, CVS
Presentation Objectives

- What is the definition of project risk
- Why managing risk is important
- When to use risk assessments
- An overview of the risk assessment process
- How to identify and assess risk
- Treating the risk
- Managing the risk assessment process
- Integrating risk into your organization
What Is The Cause?

• Escalating construction costs due to:
  – Incomplete plans
  – Design issues not mitigated and pushed into construction
  – Constrained design schedules; issues not resolved
  – Very little discussion of risk and impacts
  – Price + Time contracts
  – Not understanding the true impacts related to the risk
What is a Risk

- An uncertain event or condition that, if it occurs, has a positive or negative effect on at least one project objective. A risk may have one or more causes and, if it occurs, one or more impacts.
Threats vs Opportunities

• A negative risk is described as a **Threat** – causing an adverse impact on a project goal.

• A positive risk is described as an **Opportunity** – causing a positive impact on a project goal.
What is a Risk

- Risk can typically be divided into the following three categories:
  - **Political** – this can be defined as communities, permitting, management priorities, users, approvals, media, and internal stakeholders/project team issues.
  - **Technical** – this is the most common for design and construction projects and is typically represented by requirements, regulatory, technology, data, design, construction, maintenance, operations, life cycle asset management, and cost. (i.e., health, safety, environmental, etc.)
What is a Risk

– **Contractual** – this is most commonly related to funding, negotiations, scope of work, qualification requirements, certification requirements, incentives, penalties and defaults.
Importance of Managing Project Risk

• Avoid and/or minimize adverse impacts
  – Planning
  – Design
  – Construction
  – Commissioning

• Maximize opportunities to improve project objectives

• Avoid and/or minimize management by crisis

• Better decision-making; understanding all impacts

• Help keep management apprised of project issues
Risk and Project Management

- All phases will benefit from the analysis
  - Planning
    - Programmatic decision-making
    - Formulates initial approaches to determine level of effort and potential cost implications
  - Project Initiation
    - Developing project scope/complexity
    - Budgetary impacts
  - Project Feasibility/Pre-Design
    - Reducing potential risks during concept development
    - Alternative selection
Risk and Project Management

– Design
  • Managing project risks
  • Minimizes construction impacts (cost & schedule)

– Construction and Commissioning
  • During the Partnering session – a Risk-based approach
  • Informs construction of risks identified through the design process
  • Provides new information from a contractors perspective – helps to reduce or eliminate risks impacting the schedule, budget and delivery
  • Identifies potential impacts to avoid commissioning problems and challenges
Risk and Project Management

– Alternative Delivery
  • CMAR/CMGC
    – Used by the CMAR team to develop an understanding and provide ideas for risk mitigation in their proposals
    – Formalized workshop with all parties
  • Design/Build
    – Used by the owner developing and finalizing the RFP documents
    – Used by the D/B team to develop an understanding and provide ideas for risk mitigation in their proposals
    – Joint session with Owner and D/B team
What is a Risk Assessment

• It is a focused effort to discover and act on risks and opportunities that can affect a project’s scope, schedule, budget or quality early in the project and continuously throughout the project life cycle.

• It is a quantitative and qualitative approach to identifying risk, which includes both the negative sides of risk and opportunities, and evaluates the likelihood and potential impact.
Risk Approaches

- **Quantitative** – electronically modeling the project schedule and/or cost estimate. Uses a Monte Carlo-type simulation.

- **Qualitative** – using a simplified tool, such as a risk register to identify and then track, using an order of magnitude impact to cost and schedule.
Risk Assessment Process

• Planning for the Workshop
• Initial Risk Assessment Workshop
  – Stand-alone
  – Jointly with a value engineering effort
• Risk Register Updates
• Follow-up Workshops
• Risk Data-base Updates
• Transfer Risk Information to Construction
  – Combine with a Risk-based Partnering workshop
  – Part of the project start-up
Risk Assessment Process

• With Value Engineering Study
  – Identify Risks
  – Evaluate Risks Using Risk Register
  – Creative Mitigation or Elimination Risk
  – Develop Ideas
  – Define Potential Impacts
Risk Assessment Process

- Project Close-out
  - Update the risk database (knowledge transfer)
Continuous Improvement Cycle

Plan:
- Design Risk Assessment Framework/Program
  - Identify Stakeholders
  - Establish Workshop Framework
  - Review Risk Database
  - Review Lessons Learned
  - Customize Risk Assessment Plan

Do:
- Risk Analysis and Mitigation
  - Implement Project Specific Workshops
  - Analyze, Assess and Prioritize
  - Implement Mitigation Measures
  - Implement Risk Assessments

Check:
- Checking and Monitoring:
  - Review and Update Project Risk Registers
  - Monitor Performance Metrics

Act:
- Continual Improvement of the Risk Framework
  - Revise, Control, and Repeat
  - Continuing Risk Assessment
  - Education and Workshops
  - Improve Process
  - Implement “Lessons Learned”
Risk Planning Phase (Planning, Design, CMGC/CMAR)

- Information and Data Gathering
- Stakeholder Identification and Involvement
- Risk Assessment Team
- Determine Level of Project Complexity
  - High complexity/consequences
  - High importance
- Review Existing Data
  - Including the Risk Database
- Workshop Logistics
- Workshops/Meetings
Risk in GCCM

- A tool to help the CMGC firms develop more risk-based approaches for their proposals
- After selection, a formal stand-alone workshop or in conjunction with a VE workshop
- Risk team members are the team
  - CMGC Team
  - Design Team
  - Owner’s Team
Risk in GCCM

- Initial workshop should occur at the beginning during pre-construction services
- Develop risk treatment plans to be addressed and tracked through the design process
- Update the risk register throughout the design process; retire risks, add new risks
- Helps to further eliminate or mitigate risks on a project helping to reduce overall costs for the GMP
# Risk Identification and Analysis

## Project Name

### Probability of Occurrence

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### Risk Identification and Analysis

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Status of Risk

• **Threats**
  – Avoid/Eliminate
    • Clarifying requirements, obtain information, improve communication, acquire expertise.
  – Transfer/Share
    • Gives the risk to a third party, does not eliminate the potential costs or exposure. Where is the best place for the risk to borne.
  – Mitigate/Reduce the Likelihood
  – Accept
    • There are many risks that will occur regardless of mitigation measures, these are accepted and then accounted for in the scope, schedule and budget.
Status of Risk

• Opportunities
  – Accept – Ensure that the opportunity is realized. Might include escalating a schedule for early completion.
  – Share – Apportioning ownership between two or more. Might include using performance specifications.
  – Enhance – Increasing the probability that it will occur. Might include facilitating the cause to increase the probability.
# Treating the Risk

## Project Name

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## Cause (Triggers)

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## Risk Description

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## Consequences

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## Existing Preventive Controls

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## Comments


Managing the Plan

- Manage and update the risk register and treatment plan
- Track assignments for completion
- Monitor the “watch list”
- Decision-making and keeping management informed
Risk Assessments & Construction
“Risk-Based Partnering”

• Use the existing Risk Register as a start – if available
  – Helps to educate the contractor of potential risks the design team dealt with
• Uses a slightly modified Risk Register
• Focus on risks only associated with construction (remember, this is after the bid)
• Helps to be proactive in problem identification and solutions (important with price + time)
Risk Assessments & Construction
“Risk-Based Partnering”

• Helps the construction team to understand potential cost impacts earlier
• Much stronger focus on construction elements of the project and not the “touchy feely” stuff
• Overall improvement in communication and understanding, before we ever start
# Risk-Based Partnering

## Risk Register

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<th>Probability of Occurrence</th>
<th>Very High</th>
<th>High</th>
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### Identify the Risk

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Integrating Risk Assessments

• Establish a formal process and integrate into your project management plan
• Contractors and designers use the tool to develop improved proposals
• Contractors and design teams integrate risk assessments in the services you offer
• Establish a risk data-base
• Identify a risk coordinator for each project (May be the Project Manager)
Integrating Risk Assessments

- Establish management support and “buy in”
- Track statistics and share the data to support the process and the successes
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