

- Specialty Advisors and Consultants – professionals providing support with planning and acquisition strategies and actions, studies, assessments, and other consultations that form the basis for project scoping and execution strategy.
- Third Parties – government and private entities, facility users, facility maintenance staff, or other internal agency stakeholders who interface with the project at some stage. Their opinions and input are valuable to ensure all factors related to their interests and roles regarding the project are vetted.

Effectively integrating the skills and knowledge of the above stakeholders from the very early stage of project planning, through project development, and into execution allows for informed decisions that improve project delivery metrics and reduce exposure to risks. Equally important is the need to maintain continuity of the above stakeholders throughout the lifecycle of project delivery; this continuity preserves the institutional knowledge developed on the project and promotes efficient and effective decision making as the project evolves. The following sections present various management strategies and best practices to minimize and mitigate risk in order to achieve successful project delivery:

Project Delivery Stakeholders Are Qualified in Their Proposed Role: The foundation for successfully executing any project, especially those with a higher level of risk, is for the Owner to select the parties delivering the various services based on those parties' appropriate and demonstrated experience and qualifications to execute similar type of work. This consideration is especially important when selecting the A/E and PM/CM firms, as their expertise is relied upon for critical decisions related to the design and management of the project. Qualifications-based selection is a must - professional services should not be acquired based on the best value or lowest price technically acceptable (LPTA) qualifications. Best-qualified professional firms will work collaboratively with the Owner to develop reasonable consultant services budgets for execution of the work and will ensure that all necessary professional services are enlisted to deliver reliable and credible consulting. Similarly, for certain types of construction projects (e.g., complex or specialized), prequalification of contractors is a prudent practice; this ensures the most qualified potential bidders are invited to propose and excludes contractors who are not qualified and could introduce additional risk.

Planning Charettes/Confirm Project Scope: Each project involves multiple stakeholders who have varying interests regarding the purpose and execution of the project, and in one way or another, are affected by how the project is executed. These stakeholders, in addition to the A/E, PM, and Contractor(s), include agency contracting and management staff, facility users or managers, third-party agencies related to permits and other regulatory compliance matters, utility companies, and adjacent communities. It is important that project charrettes be held early in the planning stage to thoroughly and accurately define the requirement, understand the constraints and considerations, and ensure all limitations and preferences are understood and reflected in the project scope, schedule, and budget. This early involvement minimizes risk by avoiding surprises, miscommunication, and disagreement

and comprehensive assessment of the proposed site and associated facilities and infrastructure is an invaluable investment that sets the stage for developing reliable

The ability to procure projects and receive bids within the Owner's budget allowance is a constant challenge – one that is hard to control given the variations in market conditions at time of bid and the

metrics discussed earlier in this paper, the Owner and its management team can make proactive and informed decisions on strategies to avoid or mitigate such risks. The development of the Risk Register is an important first step in this effort. This register is updated as the project evolves to add risks and to qualify and quantify the impact of these risks on various aspects of the project. The Risk Register becomes an indispensable tool during project progress discussions and, also, thru expert qualitative and quantitative analysis, provides additional input to inform cost estimating and schedule analysis functions on the project. This is another important service resource available to the Owner to proactively manage the impact of risks on project delivery.

Partnering and Other Alternative Disputes Resolution Practices: Proactive and on-going engagement of project stakeholders from the start of a project and thru its delivery lifecycle allows for timely resolution of issues and avoidance of disputes that could impact project progress. Partnering agreements, anchored on a charter of shared project goals and objectives by all project stakeholders, sets a strong foundation for managing risks and resolving issues on a contemporaneous basis as the project evolves. Depending on the complexity of projects, partnering sessions can be held monthly or quarterly, and moderated by an independent partnering facilitator with experience leading similar type engagements. An organized agenda of topics is used to ensure coverage of all main areas of the project. Issues are discussed and resolution is documented or tracked for follow-on action. All open items are tracked for resolution or reconciliation at planned meetings. The purpose of partnering is to foster a collaborative and solutions-centered relationship among all project stakeholders to avoid conflicts and claims and ensure project success. In addition to partnering, other alternative disputes resolution practices that promote claims avoidance are negotiation and mediation, leveraging the expertise of informed and qualified third-party experts.

The above suggestions and practices have been successfully applied on multiple projects of varying scopes and complexities throughout the United States. While, for various reasons, these practices have not been consistently applied across the board, their effect on positively impacting project metrics is undeniable. Understanding the complexities of each project and then aligning appropriate management, technical and other advisory resources, in a collaborative framework, will serve well in managing and mitigating the impact of risks in all phases of project development and delivery.

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