

Risk Management in the Development of a Penta-P Project

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ABSTRACT

The Denver Regional Transportation District's (RTD's) \$2.4 billion Eagle Project is a public-private partnership (P3) that includes the design, build, finance, operation and maintenance of two complete commuter rail lines and the initial segment of a third, a new maintenance facility to support all four planned commuter rail lines and the new rolling stock that will be used to connect downtown Denver with the Denver International Airport to the east, Wheat Ridge to the west and South Westminster to the north.

In August 2007, the Eagle Project was approved by FTA to participate in their Public-Private Partnership Pilot Program (Penta-P) under New Starts. RTD received permission to enter Preliminary Engineering from the FTA in April, 2009, and to enter Final Design in April 2010. The Penta-P program allows for the elimination or limitation of certain risk assessments from the rating process, as negotiated with FTA on a case-by-case basis. This paper focuses on:

- Risk Management in a P3 context;
- How the Penta-P fits within FTA's standard risk review process; and
- How RTD used review of project risks in formulating its project delivery approach.

INTRODUCTION

Successful implementation of a public-private partnership (P3) requires a holistic risk management approach that encompasses all phases of the project, from development through to operation.

Risk management involves identifying, assigning responsibility for, and eliminating uncertainty and risk through an ongoing and evolving process. Monitoring and mitigation of risk is integrated within the day-to-day management of the project, so that risk avoidance and risk recovery efforts become everyday project activities.

This paper discusses RTD's risk management approach for the Eagle Project, which has completed the development phase, is nearing completion of the procurement phase, and is preparing for entry into the implementation phase.

RISK MANAGEMENT IN A P3 CONTEXT

In a design-bid-build procurement, the project sponsor works separately with designers and contractors, retaining all interface responsibilities. The work proceeds in a linear fashion, with designs being completed and approved before the procurement of contractors. The project sponsor makes all decisions concerning both the design and construction approach. The project sponsor provides direct oversight of all contractors under this type of procurement method, and retains all but lower level construction risks.

Under a design-build procurement, the project sponsor contracts directly with one or more design-builder contractors that have full responsibility for designing a project that meets the project sponsor’s expectations and for implementing that design. The design-builder is responsible for the selection of methods and materials which meet the project sponsor’s requirements and for coordinating those activities required to implement the project within the contract price. The project sponsor provides direct oversight of the design-build prime contractor that takes on the risks involved in managing and integrating its team members. The project owner generally retains funding, enabling, operations and maintenance and some project development and integration risks.

Under a P3 such as the Eagle Project, the project sponsor contracts with a single entity (a Concessionaire) to design, build, finance, operate and maintain a project over the long-term. Figure 1 demonstrates the division of responsibilities and risks for this type of P3.

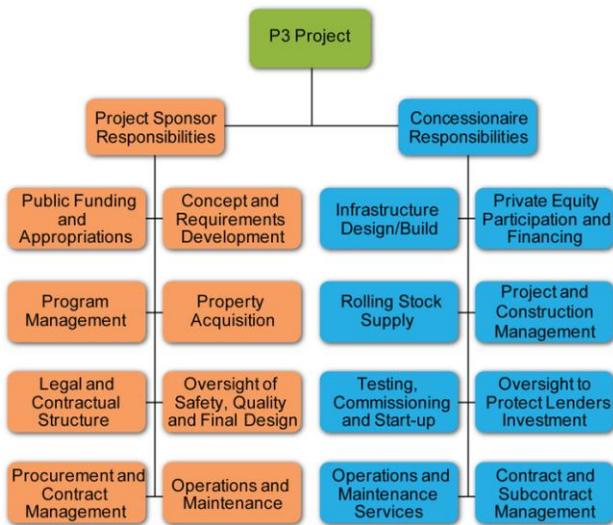


Figure 1. P3 Division of Responsibilities and Risks

The oversight of the design-build contractor is provided by the Concessionaire equity participants and financiers (the lenders), while the project sponsor oversees the Concessionaire. The lenders take necessary steps to protect their significant investment that is at risk if the team does not meet the performance requirements included in the contract, and at the same time implicitly protect the project sponsor’s interest. The project must be built on schedule for equity providers and lenders to obtain the expected return on their investment, and the

project must be of significant quality for the Concessionaire team to operate and maintain it reliably for the duration of the concession without incurring performance penalties. Therefore, internal oversight of the Concessionaire from the project’s financial participants is equal to or may even exceed the oversight provided by the project sponsor.

EAGLE PROJECT OVERVIEW

The Denver Regional Transportation District (RTD) has developed a comprehensive \$6.7 billion plan, known as ‘FasTracks,’ which addresses mobility needs in the metropolitan Denver region. The FasTracks program includes:

- 122 miles of new light rail and commuter rail
- 18 miles of Bus Rapid Transit (BRT) service
- 31 new park-n-Rides; over 21,000 new spaces
- Enhanced Bus Network & Transit Hubs (FastConnects)
- Redevelopment of Denver Union Station

A substantial component of this overall plan is a \$2.4 billion P3 called the “Eagle Project.” The Eagle Project comprises the design, build, finance, operation and maintenance of two complete commuter rail lines and the initial segment of a third, a new maintenance facility to support all four planned commuter rail lines and the new electric multiple unit rolling stock that will be used to connect downtown Denver with the Denver International Airport to the east, Wheat Ridge to the west and South Westminster to the north, as shown in Figure 2.

RTD intends to enter into a 46-year design-build-finance-operate-maintain lease agreement with a Concessionaire, over which time RTD will make payments for construction and service performance limited by an affordability level. RTD anticipates that up to 40% of the assumed capital costs will be financed by the Concessionaire using a combination of equity participation and private-sector debt mechanisms.

The contract (Concession Agreement) will include various financial incentives that protect RTD and ensure adequate control and quality. Performance standards, periodic reviews, corrective measures, penalty assessments, cure periods, payment reductions, sharing of certain upside benefits and various other measures will be provided in the terms of the contract to transfer risk to the

Concessionaire and protect RTD. Ultimately, if the private partner does not adequately perform under the Concession Agreement, all or parts of the Agreement may be terminated.

primarily by means of FTA’s own due diligence.” (FR p. 2586)

- “Accordingly, under the Pilot Program, FTA’s decision to recommend funding or to grant



Figure 2. Eagle Project Route Map

In November, 2008 RTD short-listed three teams for the Eagle Project through a Request for Qualifications (RFQ) process. These three teams all received a copy of the final Request for Proposals (RFP) that was released by RTD on September 30, 2009. Contract award is anticipated in June, 2010.

FTA’s PENTA-P PROGRAM

FTA established the Public-Private Partnership Pilot Program (Penta-P) to demonstrate the advantages and disadvantages of P3s for certain new fixed guideway capital projects within the New Starts program. The Pilot Program was authorized by Section 3011(c) of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (“SAFETEA-LU”). In particular, the Pilot Program is intended to study whether, in comparison to conventional procurements, P3s better reduce and allocate risks associated with new construction, accelerate project delivery, improve the reliability of projections of project costs and benefits, and enhance project performance. The definitive terms of the Pilot Program are described in FTA’s January 19, 2007, Federal Register Notice, 72 Federal Register 2583. FTA may confer certain benefits on the P3 Project through the Pilot Program that relate to risk, including:

certain regulatory relief will not turn primarily on FTA’s review of project costs and benefits; it will turn instead on whether the commercial terms between project sponsor and private partner allocate risks and create the incentives and liabilities in a way that safeguards the Federal interest.” (FR p. 2586)

- “The benefit to the public generally of relying on third-party commercial validation of project costs, benefits, and local commitment is that, in doing so, FTA may accelerate the review process for New Starts, thereby realizing savings for project sponsors and Federal taxpayers.” (FR p. 2586)

In August 2007, the Eagle Project was approved by FTA for participation in its Penta-P. Since that time, RTD has received permission from the FTA to enter preliminary engineering in April 2009, and permission from FTA to enter final design in April 2010. In February of 2010, the FTA recommended East Corridor and Gold Line for a new Full Funding Grant Agreement (FFGA) in the Annual New Starts Report to Congress.

Under Penta-P, FTA places great reliance on the transfer of risk to the private partner tied to the lifecycle performance of the project; and FTA has retained a P3 advisor to review and ensure that the risk transfer elements within contract packages sufficiently protect the public partner. For approval to enter both into preliminary engineering and final design, FTA has relied on its review of the Concession Agreement included in the RFP, and of

- “FTA may rely on the commercial due diligence, financial incentives, and potential liabilities of the private partner to control for such risks, rather than evaluate those risks solely or

RTD’s internal risk management plan and baseline risk register.

Prior to receipt of an FFGA for the Eagle project, FTA will review the signed Concession Agreement to determine the final risk sharing structure within the Eagle Project. Once this is completed, FTA and RTD will work together to determine FTA’s requirements for conducting an assessment of the areas of risk retained and shared by RTD. RTD anticipates receiving an FFGA for the Eagle Project no later than September 2011.

RISK REVIEW IN THE PROJECT DELIVERY APPROACH

Delivery of the Eagle Project is considered in four phases – development, procurement, implementation and operation. The phases are defined as follows:

- Development Phase – Authorization of the FasTracks program through Issuance of Request for Proposals (RFP)
- Procurement Phase – Issuance of RFP through the Effective Date of the Concession Agreement
- Implementation Phase – Effective Date through Start of Revenue Service
- Operating Phase – Start of Revenue Service through the End Date of the Concession Agreement

While the changes between phases are nominally milestone events, there can be overlaps of activities within adjacent phases. Significantly, the National Environmental Policy Act (NEPA) process and the New Starts process overlapped the development phase and the procurement phase. Coordination of the federal processes with the P3 process proved to be particularly challenging, even with significant FTA cooperation through the Penta-P program.

Each phase has fundamentally different characteristics and different areas of project uncertainty and so the approach to risk management must be tailored to fit the characteristic uncertainties, with strategies implemented that provide the most appropriate control, for that phase.

Development Phase

Early in the development phase there is the greatest level of project uncertainty, but there is also the greatest opportunity for resolving these uncertainties in ways that can reduce or eliminate risk. Key elements in the project development process include:

- Defining the project alignment and right of way; number and location of stations, structures, grade crossings, and maintenance facilities; and setting primary performance, technology and equipment parameters;
- Developing the project delivery structure, including contracts, division of responsibilities, interfaces, partnerships and agreements;
- Establishing the project budget, schedule and financial plan in a manner that is cognizant of realistic constraints and the defined scope of the project; and
- Recognizing the abilities of the existing management team and providing mechanisms to strengthen the team and fill any gaps, as necessary for a successful project delivery.

Development of the Eagle Project involved the technical progression of four component projects of the FasTracks program, as well as the development of a groundbreaking project delivery structure. Recognizing the need for each area to move forward in parallel in a manner that was coordinated with the entire RTD organization, RTD established goals, organization, participants, roles and responsibilities in the structure shown in Figure 3.

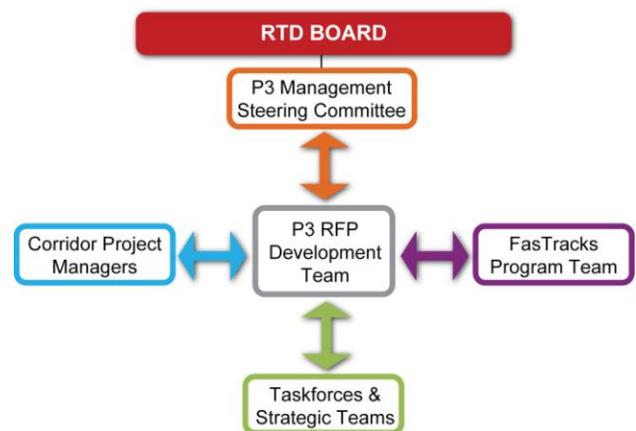


Figure 3. Eagle Project Development Phase Organization

The following bullets highlight the roles and responsibilities of the team during the development phase:

- The P3 RFP Development Team led the detailed structuring of the concession procurement and outreach to the proposer community;
- The Corridor Project Managers led the environmental permitting and basic engineering work on each project, as well as their respective stakeholder coordination efforts;
- Taskforces and Strategic Teams focused on individual support functions, including financial planning, legal support, requirements development and operations planning;
- The FasTracks Program Team provided planning and design expertise that was shared with other projects, including property, utilities, engineering and service planning functions; and
- The Management Steering Committee comprised senior RTD management that reviewed development progress on a weekly basis and provided guidance and direction on strategic decisions and key risk allocation issues as they became necessary.

The Eagle Project addressed major project development decisions through the creation of white papers on key issues to document and support the decision-making process, including consideration of risk issues and their allocation. Where applicable, white papers were used as evidence of the resolution of specific risks during the risk assessment process.

RTD formulated working agreements with project stakeholders and other third parties. Some agreements were specific to the Eagle Project or one of its component projects, while others were applicable to the entire FasTracks program or all RTD work. As appropriate, these agreements were signed by the relevant parties in the form of Inter-Governmental Agreements, Utility Agreements, and Railroad Agreements. These agreements provide evidence of the resolution of applicable risks during the risk assessment process.

The RFP Development Team synthesized the definition of the project from other activities in the development phase into a draft request for proposals documentation package. RTD, during this phase, took advantage of marketplace outreach, a pre-qualification step, and an industry review of the draft documents, as

well as other strategies for successful procurement initiation ahead of the formal procurement phase.

The industry review is vital for understanding items that the potential proposers see as risk elements to the private partner and its lenders. The project sponsor must seek to maintain a competitive market and so must be willing to revise the definition of risk sharing to maintain competition and to reduce the overall price of the project.

Procurement Phase

The definition of the procurement phase and the details of each step in the process formed the primary elements of risk sharing and risk transfer between RTD and the Concessionaire. Uncertainties may be considered in two categories: (a) the procurement process itself; and (b) the clear definition of risk allocation within the procurement documentation.

Key elements of the procurement process included:

- Ensuring that there was a competitive marketplace available and appropriate industry participants were familiar with the project;
- Developing a procurement documentation package that clearly delineated the roles and responsibilities of the Concessionaire, and of RTD, under all potential conditions that could occur during the contract;
- Having procedures and processes in place for the proposal period, including responses to proposer requests, review of alternative technical concepts during the procurement process, evaluation of the proposals, selection of the preferred proposer, and contract award; and
- Understanding each item to be completed, both by RTD and the Concessionaire, prior to the start of the contract.

Key elements of risk allocation needing to be determined and stated in the contract documents included:

- Property-related responsibilities including acquisition, remediation and demolition;
- Responsibilities for third party agreements, approvals and permits, as well as definition of and coordination with work to be performed by third parties;

- Professional responsibilities and liabilities related to design errors and omissions;
- Definition of events qualifying for relief and/or contract changes;
- Provision of bonding, insurances and warranties; and
- Structure of the P3 with regard to project financing and payments, ownership and liability for assets, project and construction management responsibilities, operating and maintenance responsibilities and service performance incentives.

A key element embracing many of the risk factors is the overall duration of the Concession Agreement. The duration needs to be long enough to truly transfer ownership risks to the private operator, suggesting a period representing the lifecycle of many project components. Equally, the duration should be sufficient to provide for payback of the private financing and equity participation. Nevertheless, it should not be so long that the project sponsor becomes locked into a contract that can become economically unattractive, and so it must allow for periodic readjustment of service levels and payment terms in recognition of changes in the service needs and economic factors.

Once the RFP was released to the proposer community, RTD’s organization was modified to focus on its responsibilities to the procurement process, and the evaluation of proposals.

During the procurement phase, risk management is under the control of the project sponsor. After that point, the project sponsor can only accept risk and deal with the consequences by applying some form of contingency, since the responsibility for mitigation is also transferred to the Concessionaire. As illustrated in Figure 4, this has the effect that the project sponsor’s risk and cost exposure is mostly mitigated by the time the contract is awarded and its exposure during the implementation phase is much less than in projects with other delivery methods, leading to better contingency management and increased cost certainty.

The procurement phase also covers proposal evaluation, award of the Concession Agreement, and financial close. The key element of this phase is the risk sharing and transfer definitions that are refined throughout the procurement process and in the associated documentation including both the RFP and the selected

proposal. RTD’s evaluation and selection procedures focused on the commitment of the proposer (and the confidence of RTD in that commitment) that, as the Concessionaire, it accepted the project risk profile defined in the Concession Agreement, and provided the most attractive financial terms to RTD. Meetings took place between RTD and the selected Concessionaire where the two parties continued to solidify the project risk transfer profile, which is documented in the signed Concession Agreement.

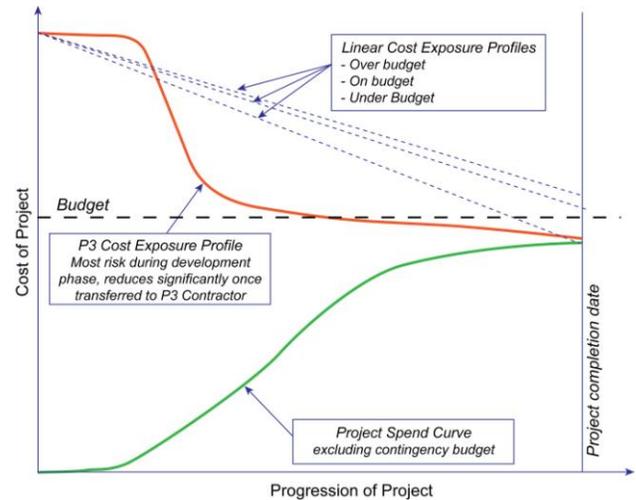


Figure 4. P3 Cost Exposure using a Risk Management Approach

It is important that a competitive procurement is maintained so that competitive tension causes each proposer to carefully assess the level of contingency to include in its bid price in contrast to the risk of pricing themselves out of winning the bid. Should the procurement result in a single proposal, the project sponsor will lose this benefit and will be faced with a long and arduous process to negotiate risk items and the value of each with the sole source proposer.

Implementation Phase

In considering the implementation phase, the project sponsor’s risk management approach must ensure that it is fulfilling its areas of responsibility and must monitor the Concessionaire’s progress with regard to performance risk and contract compliance. Key elements within this phase include:

- Applying sufficient resources to follow through on items that the project sponsor must provide,

mitigation actions and other coordination responsibilities;

- Conducting due diligence on progress reports provided by the Concessionaire to confirm that it is meeting its obligations regarding administrative, financial and contractual requirements;
- Participating in appropriate technical review and oversight forums, in order to develop independent assessments of the suitability and progression of final design and construction activities related to performance risk;
- Providing a comprehensive review of submittals for which the project sponsor retains approval rights and/or ultimate responsibility, liability and authority; and
- Assessing the performance and readiness of the Concessionaire’s work and organization with regard to proving the performance capabilities of the project for advancement into the operations phase.

The implementation phase encompasses the Concessionaire completing the project design, construction and commissioning up until the start of revenue service. The project sponsor focuses on contract management and oversight of performance risk, making sure the Concessionaire fulfills its commitments; and that the project sponsor’s responsibilities to keep the project on schedule and the associated mitigation activities are also fulfilled.

For the Eagle Project implementation phase, RTD’s organization is being modified into one that is focused on the responsibilities outlined above and on the administration of the Concession Agreement and reporting to all parties involved, as shown in Figure 5.

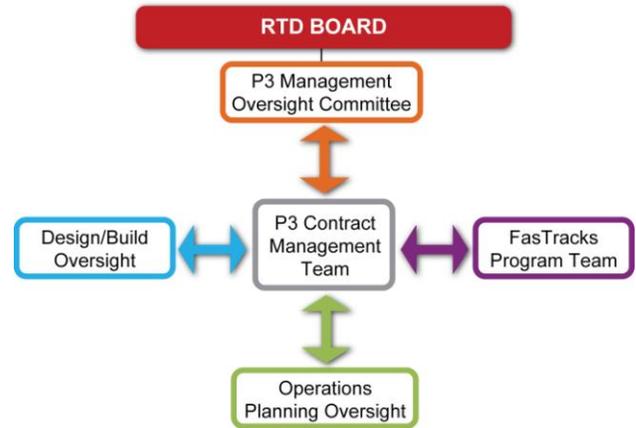


Figure 5. Eagle Project Implementation Phase Organization

The following bullets highlight the roles and responsibilities of the team during the implementation phase:

- The P3 Management Team, previously focused on the procurement process, is now the focal point for the administration of the Concession Agreement and oversight of Concessionaire-level responsibilities;
- The project-level teams are leading the oversight of final design, construction and testing activities, as well as the Concessionaire’s interfacing to project third parties;
- The primary strategic support team is overseeing the operations planning activities in preparation for management of the Concessionaire’s operating scope;
- The FasTracks Program Team continues to provide expert technical support to the Eagle Project, particularly with regard to design review responsibilities; and
- The Management Oversight Committee has less need to steer strategic decisions and so has increased focus on the metrics of delivering the project to schedule and progress with RTD’s responsibilities.

A contract oversight plan and procedures have been developed to provide guidance to the contract management and technical oversight activities, to assure that RTD’s role is performed consistent with the risk allocation in the Concession Agreement and that RTD does not take back risks by micro-managing the Concessionaire’s responsibilities.

The Concessionaire is responsible for management and mitigation of the majority of standard design and construction risks, and so its Lenders will provide close oversight through an Independent Engineer. Since delays will significantly impact the Lender's ability to begin generating their expected return on investment, the Independent Engineer's mission will be to ensure that cost and schedule overruns are avoided.

Operations Phase

The operations phase continues the overall approach from the implementation phase, in that the project sponsor must ensure that the Concessionaire's contractual responsibilities are fulfilled; but the Concessionaire's responsibilities are significantly different and so the uncertainties and risks to be considered are also different.

Key elements in the early stages of this phase include:

- Developing the means to manage metrics, availability of data, and the processes by which RTD will monitor the Concessionaire's performance against contractual requirements;
- Establishing steady-state interfaces between the two parties' operating organizations, with regard to shared and coordinated activities; and
- Performing the administration of the contract, including ongoing potential for contract changes related to scope adjustments, asset enhancements and variations of the required service provisions.

For the Eagle Project, risk management in the Operations Phase will again center on RTD providing oversight to ensure the Concessionaire fulfills its contractual commitments and assuring appropriate communication and coordination between RTD operations and the Concessionaire.

RTD's organization will be modified to focus on these responsibilities, with a small oversight staff representing contract management, service performance oversight and asset condition oversight. The contract oversight plan and procedures are enhanced to provide guidance for this phase, to assure that satisfactory service performance and contract compliance are maintained and that the performance metrics are appropriately applied to provide incentives or penalties to the service payment regime.

Whereas the earlier project phases are very dynamic, the operations phase is more steady state and so demonstration of risk mitigation is provided through regular scheduled reviews of risk items and implementation and modification of associated operating procedures.

Risks transferred to the Concessionaire are also more stable than during implementation and so oversight by the Lenders will be less onerous unless and until service performance standards degrade and service payments are impacted.

SUMMARY

Implementing a successful P3 procurement requires a holistic approach to risk management in all phases of the project that includes:

- A development process that provides a clear definition of the project, its scope, and performance characteristics, that can be provided to stakeholders, proposers and the public, and leaves no ambiguity as to the overall content and purpose of the project;
- A procurement process and contractual structure that provides a distribution of risks among the project participants that is equitable, with allocations to the party most able to manage each project risk element and to maintain progress within project budget and schedule parameters;
- An implementation process within a Concession Agreement structure that provides for the efficient and timely design and construction of the project, as well as successful provision of passenger service through comprehensively developed operating and maintenance services; and
- An operations process that provides an achievable delivery plan, including realistic budget and schedule parameters, division of responsibilities and mitigation management activities, that can be implemented effectively by the Concessionaire with oversight by the owner's team.