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RISK ASSESSMENT IN FIXED GUIDEWAY CONSTRUCTION. The objective of this report is to help the owner or the sponsor in developing a framework for managing risk in the design and construction of a fixed guideway capital transit project.

Page 36 Share Suggested Citation: The National Academies Press. But what do these cost estimates really consist of? But what about costs for designing the project, obtaining permits, and managing the construction project? What about the cost of settling a real estate legal issue or testing a mechanical system before the project opens? Furthermore, transit agencies may face tough public scrutiny over the accuracy and consistency of their cost estimates, scrutiny that is driven by perceptions that transit project capital costs have been underestimated in the past. Finally, while a great deal of research has targeted hard cost estimation techniques, very little literature exists on the composition and estimation of soft costs for transit projects. This Guidebook is designed to help fill that gap. It is intended to help transportation project sponsors better understand and estimate soft costs, especially during the initial phases of devel- oping a rail project. Projects will benefit most from this Guidebook during early planning phases, typically during alternatives analysis or preliminary engineering as the draft environmental impact statement DEIS is prepared. The definition and discussion of soft costs presented here is relevant to almost all kinds of major public transit capital infrastructure projects, but the methodology to estimate soft costs in Chapter 6 applies only to new rail construction projects. This Guidebook is designed to help practitioners in two ways: By presenting a soft cost estimation methodology. The final sections of this Guidebook provide a new tool to estimate project soft costs, based on both the characteristics of the project and the organizational attributes of its sponsor agency. By the end of this Guidebook, the reader should be armed with a clear understanding of what soft costs are and how they are estimated, a new way to approximate soft costs for themselves using a blend of art and science, and a resulting estimate of soft costs for a given project firmly rooted in historical experience. Audience and Circumstances Exhibit 2. Projects this Guidebook addresses. This Guidebook is intended for: Who this Guidebook addresses. Instead, these expenses are incurred on professional services that are necessary to complete the project, as described under the Standard Cost Categories SCCs below. Soft costs are the expenditures necessary to plan, design, and manage the project, while hard costs are the expenditures required for construction. As an analogy, a homeowner planning to build an addition to his or her house might hire a surveyor to measure the land and an architect to design the project and oversee construction. Fees for these professional services are soft costs to the project. Similarly, a transit agency seeking to expand or renew its infrastructure will hire surveyors, planners, engineers, architects, project and construction managers, and other professionals to plan, design, and develop the transit con- struction project. This structure consists of ten major cost categories as shown in Exhibit 3 , each of which is further broken down into components. This common cost-estimating structure allows FTA to compare cost estimates from different kinds of projects across the country on a consistent basis. Standard Cost Category 80, Professional Services, consists of eight separate components see Exhibit 1 , which together encompass all services and activities commonly associated with project soft costs although some exceptions are discussed below. Based on a review of existing literature, this definition is reasonable, consistent, and comprehensive for estimation purposes. Furthermore, using the SCC structure and the definition of SCC 80 is consistent with the historical analysis that underpins the new soft cost estimation methodology discussed later. Federal Transit Administration, defines as follows: Generally, soft costs are the capital expenditures that are required to complete an operational transit project, but which are not spent directly on activities related to brick-and- mortar construc- tion, vehicle and equipment pro- curement, or land acquisition. Instead, these expenses are incurred on pro- fessional services that are necessary to complete the project.

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Risk assessment is difficult in large capital transit projects. Yet, it is imperative that the owners or sponsors engage in a rigorous, systematic analysis of major sources of risk. The objective of this report is to help the owner or sponsor in developing a framework for managing risk in the design and construction of fixed guideway transit.

Risk Management of Infrastructure Projects in the Development of Capital Cost Estimates Risk Management of Infrastructure Projects in the Development of Capital Cost Estimates The last several decades have witnessed an effort by a large number of federal and state entities to standardize an approach to risk management, and this has culminated in the issuance of risk management guidance by several federal and state agencies to aid in the development of reliable cost estimates. This article provides an overview of risk management guidance laid down by the Federal Highway Administration FHWA and the Federal Transit Administration FTA for risk management of infrastructure projects in the development of capital cost estimates. GAO also found that existing FHWA cost estimating guidance was voluntarily provided to states and covered only major projects. It also drew on other infrastructure and major project areas for examples of risk management best practices. The CER process was updated in [4] to improve the consistency of results by establishing a format for modelling uncertainty. It is typical for two CERs to be conducted for major projects. A preferred alternative must be identified prior to the first CER. The second CER should be completed at least 90 days, but no more than one year, prior to the initial financial plan submittal. FHWA may consider variations to the 70th percentile cost on a case-by-case basis. A detailed explanation should be provided if the 70th percentile cost is not used in the financial plan. MAP requires the financial plan to include an analysis of the risk allocation associated with delivering the project through a P3 procurement. To support the preparation of this assessment, all CERs that are conducted prior to the issuance of the NEPA decision document must include a component to analyze the allocation of risk with respect to delivering the project through a P3. These guidelines aimed to promote effective project management by introducing a transit capital project development process and general project management principles. In particular, the guidelines require that a risk management program be established for all major transit projects and a multi-disciplinary risk management group be organized to lead the risk identification, assessment, and mitigation throughout the life cycle of the project. The guidelines require that a risk and contingency management plan RCMP be included as part of the project management plan PMP for major capital projects. This establishes the necessary procedures to ensure the effective implementation of risk management activities. The Project and Construction Management Guidelines were subsequently updated in , and The latest update incorporates renewed emphasis on cost containment through continuous risk management practices[8]. FTAIn the early s, FTA commissioned a research project to help project owners or sponsors develop the framework for a risk management program. This report serves as guidance in helping the owner identify risks that may affect project budget and schedule objectives. The report also provides a very informative section on the risk assessment process carried out by the surety bond industry. Currently, FTA procures project management oversight contractors PMOC for use as extended staff for routine and specialized oversight of the design and construction of major capital transit projects throughout the states. After several updates, this became the basis for Oversight Procedure 40 - Risk and Contingency Review issued in , a component of the series of oversight procedures to instruct FTA staff as well as its PMOCs to conduct project reviews[10]. Between and , FTA completed over 40 risk assessments for the New Starts program and other major capital projects[12]. FTA addressed its evolved risk assessment practices and requirements in its Project and Construction Management Guidelines update. Mirroring Oversight Procedure 40 structurally, this guide walks the grantees through the risk review process, explains the methodologies for assessing cost and schedule risks in particular the top-down approach and provides risk mitigation and management guidance[13]. In late , recognizing the need for faster and more integrated project development and delivery, the FTA rolled out a new and streamlined risk assessment process for New Starts

projects[14]. This new process allows and encourages the project sponsors to conduct more risk assessments independently. FTA will also tailor its own risk assessments to the specifics of the projects through a three-tiered system and perform more integrated oversight, as opposed to risk reviews at discrete milestones. It is expected that the revised risk assessment process will cut the New Starts project delivery timeline by as much as six months[15]. Conclusion Federal agencies are making steady progress in identifying and managing risks for federal-aid projects. Ultimately, the goal of this guidance is to ensure that project sponsors have the tools to deliver every project on time and under budget. Rather, there is a distribution of possible costs, each with an associated probability that it will not be exceeded. Higher percentiles translate to increased confidence that the project has not been underestimated. More on this subject.

Chapter 3 : The Five Step Guide to Risk Assessment â€“ RoSPA Workplace Safety Blog

The objective of the report is to help the owner or sponsor in developing a framework for managing risk in the design and construction of fixed guideway transit projects.

Chapter 4 : Rail Transit Rules and Regulations

Risk assessment in fixed guideway transit system construction [microform]: final report / Ali Touran, Paul J. Bolster, Scott W. Thayer ; prepared for University Research and Training Program, Federal Transit Administration, U.S. Dept. of Transportation.

Chapter 5 : Risk assessment in fixed guideway construction / - CORE

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Chapter 6 : NFPA - Standard for Fixed Guideway Transit and Passenger Rail Systems, Edition

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Chapter 7 : Risk Management of Infrastructure Projects in the Development of Capital Cost Estimates | WS

"Performing organization report no. NU"--Technical report documentation page."January "Includes bibliographical references (p. , A-1 - A-8)Final blog.quintoapp.commed by Northeastern University under contract blog.quintoapp.com of access: Internet.

Chapter 8 : List of NFPA Codes and Standards

The objective of the report is to help the owner or sponsor in developing a framework for managing risk in the design and construction of fixed guideway transit projects. Risk, as used in the context of the report, is defined primarily as the potential for monetary loss resulting from uncertainty about the project.