

全生命週期風險管理於捷運近接隧道設計 及施工之運用

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摘 要

在高密度建築物之都會區進行捷運路網規劃設計，地下段之潛盾隧道線形往往需配合既有道路在不入侵建物基礎原則下進行配置，然在有限的空間範圍內，潛盾隧道設計施工將面臨諸多近接問題，倘在設計初期即考量以全生命週期之風險管理系統進行管控，將有效降低施工及後續營運之風險，本文將以環狀線發展的風險管理系統為始，介紹環狀線某工程標近接隧道設計與施工之成功案例，進一步說明萬大線某工程標以價值工程結合全生命週期風險管理手段，以調整線形配合近接隧道之設計，同時減少車站深度及縮減施工費用，並提升車站使用效益，期望在降低施工風險與工程費用下將風險管理及價值工程發揮最大效益。

關鍵字：近接、風險管理、地盤改良、價值工程。

The Application of Life Cycle Risk Management in MRT Adjacent Tunnels Design and Construction

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Abstract

During the planning and design of rapid transit network in the metropolitan area of high-density buildings, the alignment of shield tunnel must comply with the existing roads without intruding the building foundations. However, within the confined space, the design and construction of shield tunnel will encounter many adjacent issues. If the project control takes life cycle risk management into account in the early design stage, it will effectively reduce the construction and subsequent operational risk. First, this paper will present the risk management system developed in the Circular Line. Then, the successful adjacent tunnel design and construction cases of Circular Line using above methods were introduced. Further, in order to design the adjacent tunnels by adjusting alignment, Wanda Line employs the life cycle risk management incorporated with value engineering. In this way, the excavation depth of station and construction costs were both decreased. Moreover, it enhanced the efficiency of station utilization. In respect to lower construction risk and project costs, the life cycle risk management incorporated with value engineering will maximize the benefits of risk management and value engineering.

Key Words : adjacent, risk management, ground improvement, value engineering.