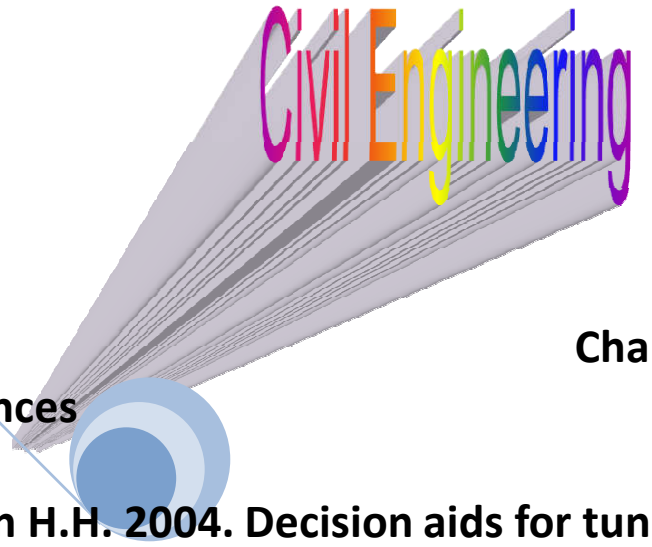
Technical English in Civil Engineering
(141220 Hebei University)



Chapter 11 Tunnel Engineering

References

Einstein H.H. 2004. Decision aids for tunneling update. Transportation Research Record: Journal of the Transportation Research Board, 199-207.

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Sourced from:

Einstein, H.H 2004. Decision Aids for Tunneling: Update. Transportation Research Record, 1892, 199-207. doi:10.3141/1892-21

Business is unfinished. Long road is still far away

Abstract

Decision aids for tunneling (DAT), a computer-based tool, are used to determine tunnel construction cost and time as well as other information related to tunnel construction. Most important, the DAT allow uncertainties to be considered, an essential aspect in modern project and construction management. A brief overview of the DAT and of a variety of applications is first provided to (re)familiarize the reader. Emphasis is then placed on two recent DAT applications, namely, updating and resource management. Updating uses information collected during construction to reduce uncertainties. The resource management application shown here deals with reuse of muck to produce concrete. These practical cases reemphasize the wide variety of applications that can benefit from the use of the DAT.

Sourced from:

Einstein, H.H 2004. Decision Aids for Tunneling: Update. Transportation Research Record, 1892, 199-207. doi:10.3141/1892-21

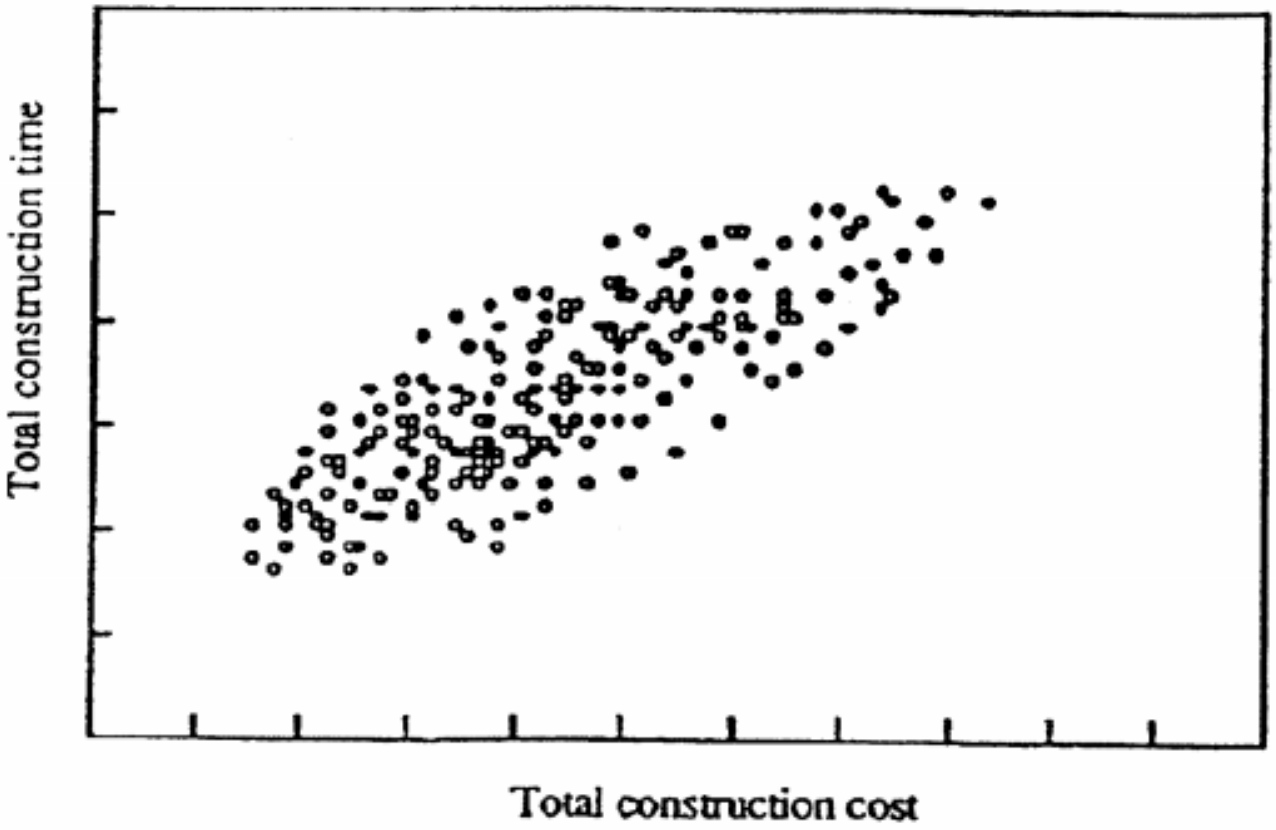

Figure 2-2: Total Construction Time-Cost Scattergram (Einstein, 2003)

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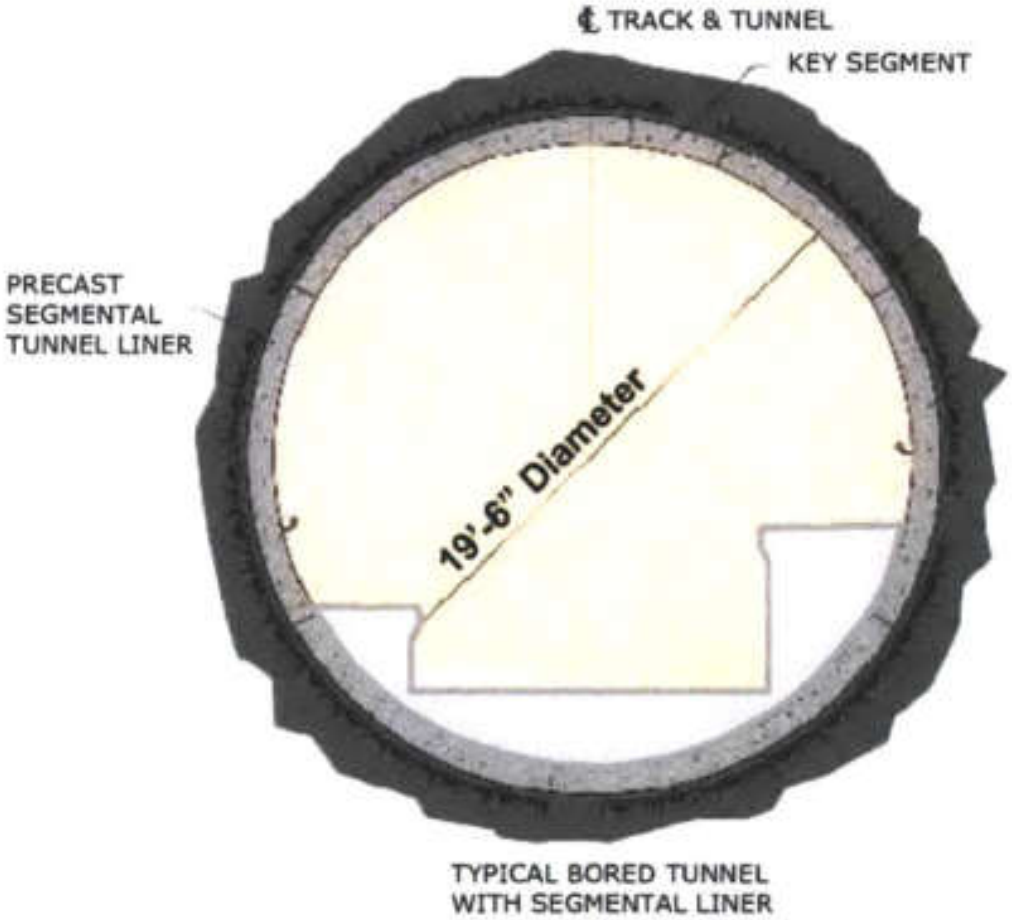


Figure 3-5: Pre-Cast Segmental Lining

Sourced from : Modeling uncertainty in the New York City no. 7 subway line extension project

Modeling cost and time uncertainty in rail line construction

CONCLUSIONS AND OUTLOOK

The decision aids for tunneling have seen numerous applications over the past decade, and the summaries provided in this paper show that the applications are both successful and wide ranging. They allow uncertainties affecting tunneling to be considered in determining cost, time, and resources. They can be used as management tools before and during construction as well as for providing the information for subsequent risk analyses. Because much of this has been shown in earlier publications, only brief reviews were provided; emphasis was placed on newer applications involving updating and detailed resource management.

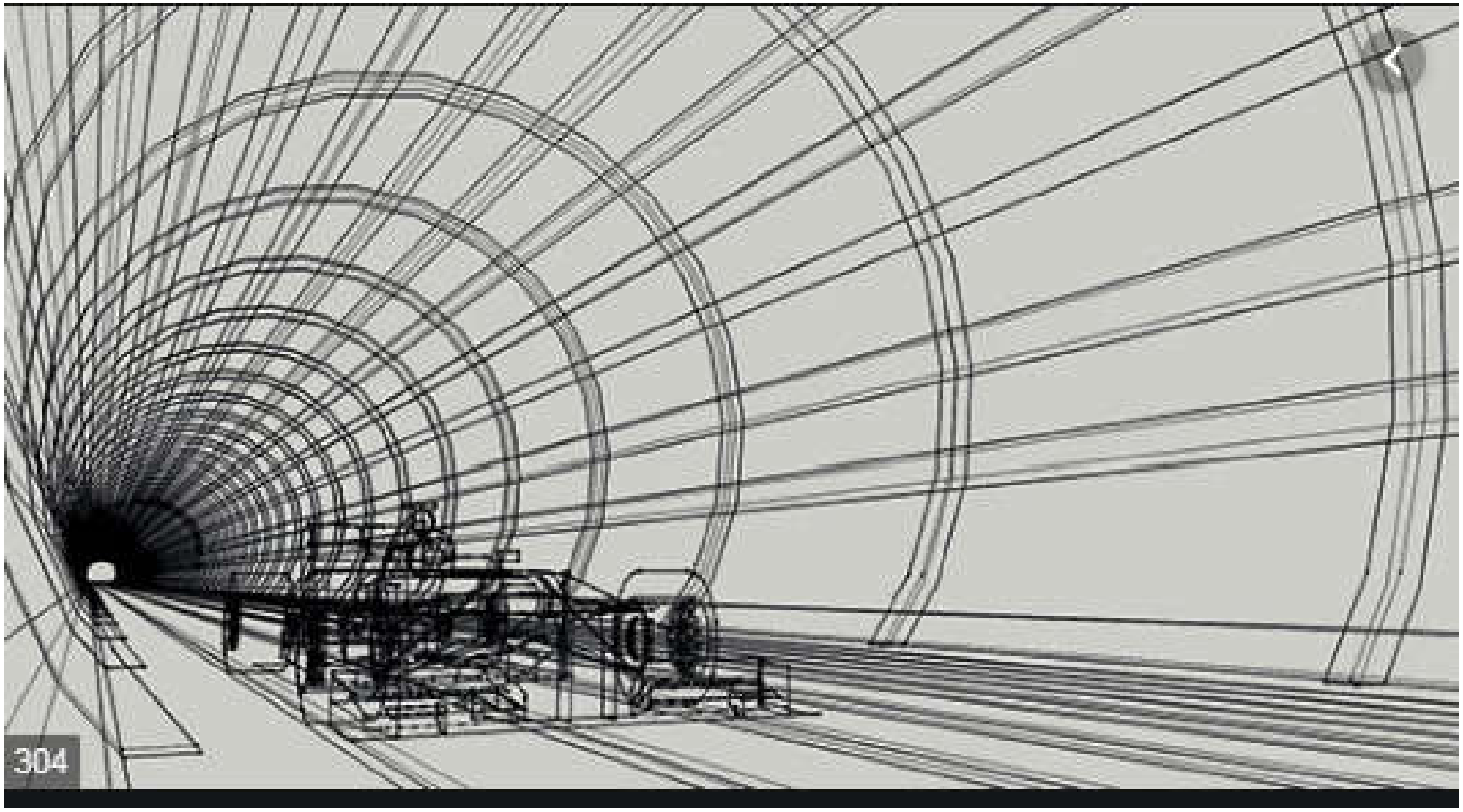
Sourced from:

Einstein, H.H 2004. Decision Aids for Tunneling: Update. Transportation Research Record, 1892, 199-207. doi:10.3141/1892-21

The methodology used for the DAT is suited to other applications. In addition to other issues related to tunneling, such as effects on the surface or on the environment in general, safety during construction and operation can be considered. In fact, the methodology is applicable to any other linear or networked system subject to uncertainties。

Sourced from:

Einstein, H.H 2004. Decision Aids for Tunneling: Update. Transportation Research Record, 1892, 199-207. doi:10.3141/1892-21


304

Chap11 China's longest underwater highway under construction.mp4 1 minute

Chap11 In 3 minutes- How China builds a high-speed railway tunnel.mp4 3 minutes

Chap11 The Art of Tunnelling in Rock - English Subtitles by Hoek.mp4 35 minutes

Thank you

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