

Analysis and Control Strategies of Ground Collapse Induced by Shallow-Buried Tunneling Construction (Postprint)

Authors: Luo Youning

Date: 2025-08-04T18:11:21+00:00

Abstract

As traffic pressure continues to mount and the traveling population grows steadily in China, accelerating the pace of expressway construction becomes essential. To alleviate traffic congestion and reduce public travel burdens, shallow-buried underground excavation tunneling should be implemented in expressway projects to enhance traffic capacity. However, this construction method is highly susceptible to causing ground surface subsidence, posing severe challenges to expressway construction. This paper analyzes the subsidence problems induced by shallow-buried underground excavation tunneling and proposes corresponding control strategies.

Full Text

Analysis and Control Strategy of Ground Collapse Caused by Shallow Tunnel Construction

Luo Youning

China Railway 16th Bureau Group the Third Engineering Co., Ltd., Huzhou 313000, China

Abstract

With increasing traffic pressure and growing travel demands in China, accelerating highway construction has become imperative. Shallow tunneling techniques are frequently employed to enhance traffic capacity and alleviate congestion. However, these construction methods pose significant risks of ground collapse, which can severely impact highway projects. This paper analyzes the mecha-

nisms of ground collapse induced by shallow tunnel construction and proposes corresponding control strategies to mitigate these risks.

Keywords: shallow tunneling; tunnel construction; ground collapse

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.