Planning and Design of Elevated Road for Aizawl City

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Summary

An elevated road of 2.25Km is to be constructed over an arterial road in Aizawl city on hilly terrain passing through built up urban areas. Proposed viaduct has complicated geometry with closely spaced curves and variable grades. Constructing the viaduct on existing two-lane road in running traffic in a phased manner is the project challenge. Design has to complement the scheme of construction.

Keywords: Elevated road; hilly terrain; entry exit ramps; phased construction; steel super-structure; split construction for changing deck geometry.

1. Introduction

Aizawl, the capital city of Mizoram state in India is entirely located on hilly terrain. Increased growth and development of the city has resulted in increased traffic volumes causing traffic congestion. Based on a traffic study undertaken by Public Works Department, main arterial road of Aizawl running along ridge of the hill from Kulikawn to Bawngkawn is proposed to be elevated from BSNL office to Chanmari Church for a length of about 2.25Km to provide grade separation to achieve traffic decongestion.

2. Existing Road Profile

Main road of Aizawl city has connecting roads leading to eastern and western slopes of the hill. Road geometry has closely spaced curves as it traverses along the contours of the hill. A stretch of about 2.25Km from BSNL office to Chanmari Church is proposed to be elevated. Due to hilly terrain, road has ascending as well as descending grades following each other with an average value of 1 in 26.56 up to 1692.5m. Last 554.5m has a milder grade of 1 in 156.64 towards Chanmari Church. The road provides connectivity to Legislative Assembly, Governor House, many government offices, civil hospital, commercial and residential areas. Most of the traffic in city comprises cars, motorbikes, mini-buses etc. with number of cars being the maximum. There are ten numbers closely spaced T-junctions where roads from eastern or western side meet the main arterial road. The minimum spacing between two adjacent junctions is 85m and maximum spacing is 425m causing slow movement of traffic.
Existing road width varies from 8 to 12 meters having properties right up to its edge and any further widening is not possible due to adjoining built-up areas. It is therefore proposed to elevate the road to provide grade separation at various intersections by creating a second level for through traffic movement.

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