



Track Transition on Bridges or Switch-Over Ramps: Rail Based Urban Transport

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Abstract

With rapid urbanisation, pressures on the urban transport facilities have increased manyfold for reasons of ever increased population and demands for better living. Rail based Mass Rapid Transit Systems (MRTS) be it elevated or underground was the first choice of the Indian Cities, which is changing now with more and more interest coming from 2nd and 3rd Tier Cities, Light Rail Transit System (LRTS) and trolley bus is gaining momentum and this become preferred choice in tier 1 cities as well to provide last mile connectivity, in sync with multi-modal integration to for door-to-door service. In order to control cost, it is now more and more explored to adopt to At Grade Section in such light transit systems. But at junction of such at grade section with Elevated / Underground stretch, it becomes inevitable to provide transition section. This paper aims in elaborating approach to design such transition zone for trackwork.

Keywords: rail based transportation; light rail transport; transition of railway track; bridge to ballasted track transition; track deflection under railway load.

1 Introduction

In present day, more and more Cities are leaning towards adopting Mass Transit System termed as “Metro”, be it Metro Lite / Metro Neo or full fledged Metro Rail System. Second and Third Tier Cities like Nashik, Thane, Gorakhpur, Jammu, Srinagar and Coimbatore, are becoming more and more interested about getting light rail based system to ease the traffic load. In order to make the projects viable, it is of utmost importance to reduce the Capex of the project and the effective way to reduce the cost is by eliminating the need of construction of heavy infrastructure and bring the alignment down to at grade wherever possible.

In addition to reduction of cost, the at grade sections bring inevitable interfaces with elevated / underground sections as there are need to decongest crowded places and some unavoidable obstructions like waterbodies etc. In such locations, different types of tracks are provided and as a result transition zone is needed to be provided in such junctions.

Although at present, there are standard practices for providing such transition zone (like for conventional rail, this is provided since long at junction of bridges with ballasted sections, or in practice for long running LRT systems (like in European countries / Singapore), in countries like India, where the system is just picking up pace, there is either option for adopting any of the