

## Some Interesting Construction features in Namma Metro Viaducts and Stations

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## 1. Introduction

The burgeoning growth of population, vehicular traffic and advent of IT and electronic industries in the last four decades in Bangalore, reminded the need for a Mass Rapid Transit System (MRTS) in Bangalore as far back as in 1983. Several studies were undertaken including a World Bank study in 1988. A Light Rail Transit(LRT) system on Public-Private –Partnership (PPP), based on a feasibility study by IL &FS, after fixing a private partner was also tried; but it failed to takeoff due to a variety of reasons. The success of opening a few sections in Delhi by Delhi Metro Rail Corporation (DMRC) resulted in the award of a contract in 2002 to DMRC to make a DPR for a metro system in Bangalore consisting of two corridors and costing about Rs.5000 crores. DMRC's report in May 2003 recommended two corridors, one East-West corridor from Byappanahalli to Mysore Road terminal upto Ring Road junction, 18.10 kms long and another North-South corridor from Yeshwantpur to RV Road Terminal 14.90kms long a total length of 33 kms at a completion cost of Rs.4989 crores. GoI approved the project in May 2006 at a completion cost of Rs.6395 crores meeting out the inflation in the intervening period. Equity participation of both governments, GoI and GoK, was equal at 15% each. Total share of GoI was 25% and GoK 30% including subordinate debt and the balance 45% was the senior term debt. Further in 2010, GoI approved extensions of 5.60km on north to Nagasandra and 3.70kms on South to Yelachenahalli on North-South corridor at a completion cost of Rs.1763 crores, making the metro net work Phase-1 in Bangalore, 42.30 kms long, at a completion cost of Rs. 8158 crores. On account of phenomenal increase in prices of cement and steel, building materials -especially sand-and fuel, the estimate was revised and Govt. of India approved the revised cost of Rs.11609 crores on 4th October 2011. (Rs. 1 crore = Rs. 10 millions).

The Phase-2 of Bangalore Metro, 72.10 kms in length, consists of 61 stations( 49 elevated and 12 underground) and the cost of the project is INR 264.05 billion( about 5.0 billion USD) It consists of four extensions on the N,S,E & W of N-S and E-W corridors of Phase-1 and two new lines 18.8 kms and 21.2 kms long. Except for a length of 14 kms, rest 58.1 kms is elevated. The Public Investment Board(PIB) has approved the proposal and the Govt.of India sanction is expected shortly. It is planned to be completed in 2019.

## 2. Salient features of the Project:

Gauge	:	Standard Gauge(1435mm) double line.
Design speed	:	80 kmph
Commercial speed	:	34 kmph
Total length of lines	:	<ul style="list-style-type: none"><li>• East-West corridor - 18.10kms</li><li>• North-South corridor - 24.20kms</li><li>• Total - 42.30kms</li><li>• Elevated corridor - 33.50kms</li><li>• Underground corridor - 8.80kms.</li></ul>
Total number of stations	:	<ul style="list-style-type: none"><li>• At grade 1 (Byappanahalli)</li><li>• Elevated - 32</li><li>• Underground - 7</li></ul> (incl. common Majestic interchange station)