The Monorail Technology
What is Monorail?

• A monorail \((\text{mono} : \text{single})\) is a guideway-based transportation system based on a single guideway beam, which acts as its sole support and its guideway.

• Mostly elevated, monorails can also run at grade or in subway tunnels.

• Vehicles are either suspended type or straddle type.

• Monorail vehicles are WIDER than the guide-way that supports them.
Types of Monorail

Suspended Type

Straddle Type
Schematic of Bogie on Beam

Rubber Tyres

Steering Wheel

Guide way

Wheel Arrangement of Monorail
Advantages of Monorail

- Safety
- Reliability
- Smallest footprint
- High Manoeuvrability
- Lower Cost
- Environmental Friendly
- Reduced Noise
- Aesthetics & Attractive
Merits: Small Footprint

- Narrow air space for ‘Right-of-Way’
- Smaller size & Light Structure

GAINS

- Minimize land-use & save cost
- Least disruptive to road traffic
- Pre-casting allows more off-site const.

Radius up to 50m
Grade Up to 6%
Merits: Environment Friendly

Simple structure -

- Does not obstruct much sunlight
- Does not trap excessive emission

Quieter – use of rubber wheels

- Monorail 75 dBA
- LRT 90 dBA
Merits: Aesthetics and City Scaping

Sleek exterior appearance that is more aero-dynamic and blends in with modern urban environment

Add Aesthetics to the city

- Greenery Along Route
- Hide-A-Track
- Hide-A-Station
- Away from City too
The flexible switch used in high-speed installations. This switch operates in about 7 sec.

Monorail Switch Arrangement
Comparison of Capacity (pphpd)
MUMBAI MONORAIL
Salient Features

First Monorail Project in India

Route: SGM Chowk to Chembur Via Wadala

Turnkey Design & Built Contract

3 Years’ Operation & Maintenance

Client: MMRDA

PMC: Louis Berger Group Inc.

Contractor: L&T - Scomi Engg. Consortium
Salient Features

- Total Alignment Length – 19.2 Km.
- Depot at Wadala
- Phase 1 (Wadala to Chembur) Length – 9.2Km
- Phase 2 (Wadala to SGM Chowk) Length – 10.37 Km

Phase-I
- Wadala
- Bhakti Park
- Mysore Colony
- Bharat Petroleum
- Fertilizer Township
- VNP & RC Marg
- Chembur

Phase-II
- Wadala Depot
- GTB Nagar
- Acharaya Atre Nagar
- Wadala Bridge
- Dadar East
- Naigaon
- Ambedkar Nagar
- Mint Colony
- Lower Parel
- Sant Gadge Maharaj Chowk
Salient Features

- Journey Time: 37 Min
- No. of Cars: 4
- Passenger Carrying Capacity: 568 per train
- Average Speed: 31 kmph
- Maximum Speed: 80 kmph
- Frequency: Jacob Circle to Wadala - 4½ Min
- Frequency: Wadala to Chembur - 9 Min
Mumbai Monorail Layout Plan
PHOTOGRAPHS – MUMBAI MONORAIL
Bird’s Eye View
Guideway Structure with Traction Rail
Completed stretch of 2B Series in 4.50Km
Completed stretch of 2B Series in 4.50Km
Guideway Beam Erection in 2C Non-RC Marg
2F Series (RC Marg) Guideway Beam
Bhakti Park Station
Completed stretch of Mahul Creek
First Train under Testing at Wadala Depot
Train under Manufacture at Rawang, KL
Train under Testing at Rawang, KL