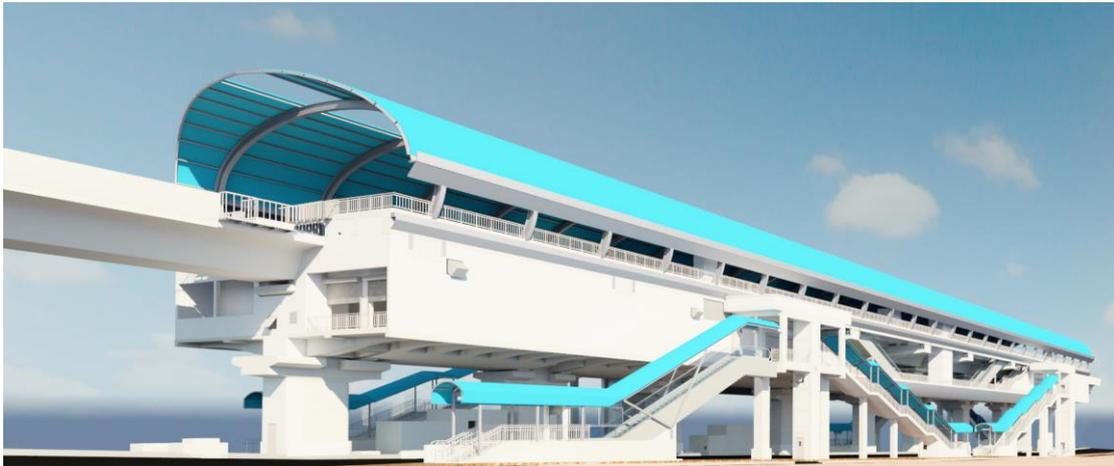


## Press Note – 2<sup>nd</sup> September 2014

### Stations



Stations being a window to Hyderabad Metro service are designed to integrate with the urban fabric of the city with minimum visual intrusion into the urban landscape. Typically a station is located above the road and consists of four levels, namely, Street, Concourse, Platform and Roof.

### Design Features

#### *Street Level*

At street level the station can be approached from entrances located at side medians or footpaths without blocking access to the existing properties. The entrances are passenger friendly and are provided with stairs, lifts and escalators. Drop-off bays close to the entry points have been provided for taxis, auto rickshaws, etc. The entry points are integrated with bus drop-offs through footpaths.



#### *Concourse Level*

The station concourse is designed to segregate normal passenger movement from operational rooms. The concourse is divided into two unpaid areas and one central paid area, providing decongestion of the commuters, more opportunities for locating entrances for articulating with surroundings, even at the ends, where skywalks can connect the station to street, adjoining properties or existing FOBs. The beauty of this level is that the unpaid area can be assessed by non-passengers too for their retail requirements and the entrances to the stations will be used as Foot Over Bridge by all pedestrians during operational hours of the station. This feature will offer a safe road crossing to the pedestrians of Hyderabad and will also streamline the vehicular traffic flow on road.

The unpaid areas house retail shops & commuter services like ticketing, baggage scanner, metal detectors, fare media readers, excess fare office, etc. Automatic fare collection (AFC) gates separate the paid area from unpaid. AFC array arrangement adopted for Hyderabad metro stations is also unique, eliminating any cross flow of passengers entering and exiting the station. The entry gates are located at center and exit gates are distributed on sides.



### *Platform Level*

Platforms of 6 m width each with adequate weather protection, lighting and ventilation have been designed. Features like safety strip at platform edge, directional flooring for visually impaired, emergency telephones, etc are installed on platform for passenger safety and convenience. The platforms are provided with a slope away from the tracks to avoid accidental movement of wheelchair, prams onto the tracks.



### *Roof Level*

Station roofs are equipped with solar panels to capture a portion of power requirements of the station. The roof is provided with openings above the track for heat dissipation from trains to maintain comfortable platform temperature.

### **Passenger Safety**

The stations are designed to meet evacuation and fire separation norms as per internationally accepted standard for Fixed Guide way Transit and Passenger Rail System, National Fire Prevention Association (NFPA-130). Fire detection and suppression provisions are planned in accordance with Indian National Building Code. Essential power back-up is provided for operational purposes as per relevant codes.

## **Disable Friendly**

The design confirms with the 'Person with Disabilities (Equal Opportunities, Protection of Rights and Full participation) Act, 1995.' Ramps are provided from the road/drop off areas to the walkway to aid people using wheelchairs to access the walkways. Further ramp from walkway leads to lift, sized and furnished for wheelchair manoeuvring. Instructions in Braille script, audio announcements and visual signage are provided to guide commuters with various categories of disability.

Ticket vending machines are provided to aid the passengers with speech impairments. Wide automatic fare gates are provided for passengers on wheelchair. Direction to all commuter facilities like ticketing, washroom, customer service, lifts, staircase, train door, etc has been provided through tactile flooring for visually impaired passengers.

There are designated wheelchair spaces in the first and last car of the trains. Five percent of seats are designated for the physically challenged passengers. Fixed and dynamic lit signages within the trains are provided to guide hearing impaired passengers. Announcements are made in the train to aid those who might be unable to see or read the information being shown on the signage.

A special toilet with provisions for differently abled passengers is provided at each station concourse. This toilet is accessed through a ramp provided for wheelchair access. Toilets are equipped with grab bars and supports to aid physically handicapped passengers. Tactile strip also leads to the facility from various areas of the concourse. Sliding door is provided for accessing the toilet.

## **Eco-friendly**

Energy efficient features are incorporated in station design. The stations are generally located on hump which means reduced power requirement to decelerate or accelerate for an approaching or departing train respectively. The stations are open buildings with minimum external walls in public areas, reducing lighting requirements during day time and providing ample ventilation. LED lighting systems with reduced power requirements and solar panels to capture alternative power, etc are installed in the station.

## **Station Structure**

The balanced cantilever structural system typically adopted for metro stations is a unique one. It provides several advantages to the city during as well as after construction. The station piers are located at the central median and the station is cantilevered on the single column, thereby avoiding any structural support at the side medians. Following advantages are achieved by virtue of this system:

-  Slick station box (20m) suitable for narrow streets of the city.
-  No obstruction to the surrounding properties.
-  Minimum impact on site lines for branching bye-lanes and roads.
-  No tunnel effect i.e. adequate ventilation and lighting for road users below.
-  Delinking of station box construction with entry structure construction.

## Advertising Business:

The Hyderabad Metro Rail Project will transform the city of Hyderabad into one of the India's most futuristic cities with a new urban landscape marking the beginning of an era of seamless commuting in India.

The new city of Hyderabad also offers unique advertising opportunities to brands looking for Smart & Unique ways of reaching their target audience via cut through the clutter, top of the mind recall, competitive edge, varied reach and deeper market penetration.

Hyderabad Metro – A world of endless opportunities offers plethora of options for a brand to choose from the existing conventional ways of advertising.

### **Broadcasting Rights on stations**

Exclusive rights to brands on a particular station/corridor to display their hardware.

### **Pouring Rights on Stations/Corridors**

Exclusive rights to a beverages brand to sell its brand of soda, water and other related beverages on a particular corridor or all stations for a period of 5 yrs.

### **Experiential Marketing Rights on Stations/Corridors**

Exclusive rights to either an agency or a master brand to display and sample its product (s) on a particular corridor or all stations for a period of 1 year.

### **Naming Rights:**

Exclusive naming rights to brands for a particular station/corridor.

### **Advertising Rights outside Trains**

An opportunity for brands to advertise on the Exterior of the Metro Trains via Train Wrap on 57 trains consisting 3 cars each – also available during pre-commissioning and trail period.

### **Advertising inside stations**

An opportunity for brands to reach out their target audience/commuters inside the stations

### **Advertising outside stations**

An opportunity for brands to reach out their target audience/commuters/street dwellers by advertising outside the stations.

### **Advertising Rights inside Trains**

Branding opportunity inside the train, viz, commercials in audio/visual messages & passenger announcements with branding across inside coaches.

## Station Retail:

64 stations list is as under.

 Retail space on the stations will be available at the entry & exit points and station boxes at the concourse level.

 Retail space available ranges between 2000 sq.ft to 10,000 sq.ft on a typical station and 19,000 sq.ft to 37,000 sq.ft on special stations.

 Exclusive large format retail stores will be accommodated in Special stations.

 Space allocation to retailers on first come first served basis

 This model is open for proprietors, firms and companies.

Interested parties for establishing shops like laundry, grocery, coffee, food courts, gifts etc may send their interest to [stationretail@ltmetro.com](mailto:stationretail@ltmetro.com)

# Hyderabad Metro Depot

## Introduction

Metro Rail depots are very complex in nature and their prime function is to support the Metro operations.

The layout of a depot is constrained by the size and shape of the available land and the limitations of track alignment, which has a much higher level of constraint than a road layout.

## Key Parameters for Design of Depot

The following parameters have been considered in the design of Hyderabad Metro Depots:

- ✈ International best practice and state of art design.
- ✈ The traffic on the system will build up over time and there may be future extensions therefore the depots is designed to be capable of servicing the ultimate system but shall be phased to minimize initial provisions.
- ✈ 25kV AC overhead traction supply system for Metro trains.
- ✈ 3-car augmentable to 6-car train formation.
- ✈ Facilities provided in depot to be sufficient to maintain and stable the trains.
- ✈ Meet the requirement of ultimate fleet of Metro trains by future expansion.
- ✈ Test track associated with the workshop and testing of trains.
- ✈ Phasing of the works to optimised initial cost.
- ✈ Rain Water Harvesting considered to utilize natural resources.
- ✈ Water Recycling to avoid wastage of water.

## Depots proposed for the Hyderabad Metro:

Depot	Line	Facility
Miyapur	Line 1 (Miyapur-LB Nagar)	Light Maintenance
Falaknuma	Line 2 (Falaknuma -JBS)	Stabling
Uppal	Line 3 (Nagole-Shilparamam)	Heavy Maintenance

Main workshop for the system will be based at Uppal on Line 3.

Fig:-1 UPPAL DEPOT LAYOUT



## Facilities available in Uppal Depot:-

- ✈ Inspection Line
- ✈ Maintenance/workshop Line
- ✈ Stabling Yard
- ✈ Heavy Cleaning Facility
- ✈ P-Way Building (Maintenance Vehicle Shed)
- ✈ Test Track
- ✈ Various workshops of subsystems of EMU
- ✈ Under-floor Wheel Lathe
- ✈ Train wash plant
- ✈ Stores
- ✈ STP&ETP
- ✈ Vehicle Parking

## Special Safety & Security Features

### SECURITY

- ✈ CCTV Surveillance System
- ✈ Intrusion Detection System
- ✈ Hazardous goods store

### ENVIRONMENTAL CONSIDERATION

- ✈ Natural Lighting
- ✈ Rain Water Harvesting
- ✈ Effluent & Sewage Treatment
- ✈ Water Recycling
- ✈ Plantation

## Facility Detail - Inspection Lines

- ✈ Inspection line is used for inspecting the train regularly as per inspection schedule.
- ✈ Facility of Roof inspection of train is also available in this lines.
- ✈ All Roof access platform has interlock system with OHE. (If OHE is charged this door will be inactive)
- ✈ Inspection Lines has 4 lines which can stable 8 nos. of 3 car set.



**Fig:-2 Inspection Lines**

## Maintenance/workshop Lines

These lines are used for heavy repair workshop for trains.

- ✈ Workshop line has 4 lines which can stable 4 nos. of 3 car set.
- ✈ This line do not have OHE.
- ✈ Shunter to be used for hauling any train in these lines.
- ✈ Attending any under frame system is also available in this lines
- ✈ This lines are equipped with lifting system also for complete 3 car.

**Fig-3:- Workshop Lines**



## Stabling Yard

Stabling Yard is used for stabling the train during non-service hours.

- ✈ It has 16 lines out of which 4 are covered and 12 uncovered
- ✈ It can stable 32 no's of 3 car set. Facility for internal cleaning of train is also available

## P-Way Building (Maintenance Vehicle Shed)

A P-way building is provided with local workshop and offices with road and rail access for stabling and maintenance of Maintenance Vehicles.



## **Fig-4:- P-Way Building**

### **Test Track**

- ✈ The test track is used for higher than normal depot speed running and is fenced from the rest of the depot for safety purposes
- ✈ Test track has a length of 960 mtrs
- ✈ This line is used for internal testing of train and other systems

### **STP & ETP**

- ✈ Waste water from wash plant and different parts of depot are directed to STP & ETP Plant for treatment. The treated water from STP is used for the flushing of EWC s & urinals.
- ✈ The water for landscaping shall be met by treated STP water.

### **Security/Surveillance**

- ✈ The depot office premises, equipment rooms, stores, various maintenance sheds/offices for P-Way/OHE/Signaling and equipment rooms with access control shall be under surveillance using CCTV cameras.
- ✈ These cameras feed to monitors in the Guard House to facilitate coordinated action in the case of a serious security breach.

### **Vehicle Parking**

Depot will have facility to park approx. 350 car and 350 two wheelers with 4 Bus parking facility.

## **Machineries and facility to support Maintenance activity**

### **Under-floor Wheel Lathe**

- ✈ The under-floor wheel lathe will simultaneously machine the two wheel treads of each wheel-set. This under-floor wheel employ the state-of-the-art CNC or microprocessor technology.
- ✈ The lathe is equipped with an automatic wear-measuring device to achieve the minimum removal of wheel material.
- ✈ Machine Supplier:- Talgo, Spain

**Fig-5:- Wheel Lathe**





**Fig-6:- Wheel Lathe Building**

### **Automatic Train wash plant**

The train wash plant is a drive-through plant for the purpose of cleaning the train exteriors as they are taken off service and returned to the depot for stabling.

### **Technical Details**

- ✚ Supplier: Wilcomatic (U.K)
- ✚ Features: Fully Automatic, Manual, Operation from Control Room
- ✚ Sensors: Intelligent sensor(photo sensor) for machine startup and shut down
- ✚ Stages: 4 stage wash - Pre wet, Detergent Spray, Water Wash, RO water spray.
- ✚ Capability: 6 train wash per Hour



**Fig:-7 - Automatic Train Wash Plant**

## Stores

- ✦ Storage facilities are provided to ensure that all appropriate spares, parts, tools and consumables are delivered to and issued from a single main store with as few sub-stores as practical.
- ✦ Accommodation of the complete range of spares and supplies, for the maintenance and operation of the rail system are provided.

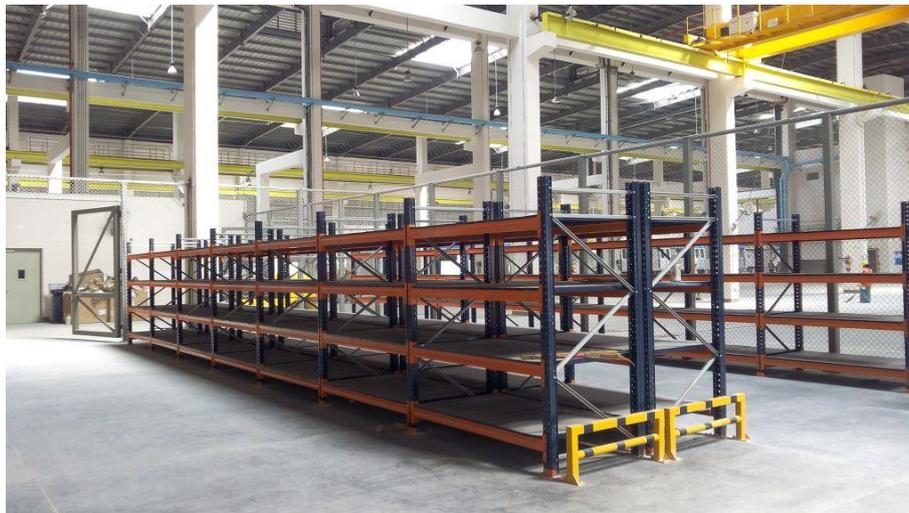
## Types of Store



**Fig-8:- Compactor**



**Fig-9:- Light Duty Store**



**Fig-10:- Heavy Duty Store**

## Battery Tractor:

Battery Tractor is a road cum rail vehicle used to shunt the rolling stock (trains) within the depot and wheel lathe building.

### Technical Detail

- ✦ Supplier:- Zephir ITALY
- ✦ Road cum rail vehicle
- ✦ Battery operated
- ✦ 6 car train pulling capacity
- ✦ 10 hour working in full charge



**Fig-11:- Battery Tractor**

### **Diesel Shunter:**

Diesel shunter is a road cum rail vehicle used to shunt the rolling stock within the depot & viaduct. This is First of its kind in Indian metro operation

### **Technical Detail**

- ✦ Supplier:- Zephir ITALY
- ✦ Road cum rail vehicle
- ✦ Diesel Engine
- ✦ 6 car train pulling capacity at Ramp and viaduct(4% Gradient)
- ✦ Memory box
- ✦ Dead Man switch
- ✦ Speed: 15 km/h on road , 25 km/h on rail with no load
- ✦ Engine- Cummins 6 cylinder,129 kW,173 HP
- ✦ Weight - 20Ton
- ✦ Transmission - 3 Front gear,3 Back Gear



**Fig-12:- Diesel Shunter**

## Rescue Vehicle:

Rescue vehicle is a road cum rail vehicle used in emergency cases. (Eg derailment of train). It is loaded with all the equipments necessary to re rail the train.

### Technical Detail

- ✈ Supplier:- Zagro, Germany
- ✈ Mercedeze Vehicle
- ✈ Road cum rail vehicle
- ✈ Diesel Engine
- ✈ Dead Man switch
- ✈ Chasis- Mercedes Benz Unimog U400
- ✈ Speed - 89 KMPH on Road, 50 KMPH on Rail
- ✈ Engine -130kW,177 hp
- ✈ Transmission -8 Gears Forward,6 Gears Reverse
- ✈ Vehicle weight - 12 Ton
- ✈ Hauling capacity - 100 Ton



Fig-13:- Rescue vehicle

## Catenary Maintenance Vehicle (CMV):

CMV is used for maintenance of 25 KV overhead electric traction system & also used for laying of cable on viaduct, carrying heavy equipment.



Fig-14:- Catenary Maintenance Vehicle

## Material Handling Equipment

Many different vehicle is used for material handling in store area such as



Fig-15:- Diesel Forklift



Fig-16:- Electric Forklift Fig-17- Electric stacker

## Other Facilities & Equipment



Electrical Stacker



Hand Pallet Truck



Golf Cart



Truck Mounted bucket type platform



**High Pressure Wash Pump**



**Mobile Air Compressor**



**Work bench Test Bench**