



Inclusive and Sustainable Mobility: Hyderabad Metro example



NVS Reddy
Managing Director,
Hyderabad Metro Rail Ltd.

Hyderabad Metro Rail project in PPP mode

World's largest Metro Rail project in PPP mode
3 high density traffic corridors (72 km) taken up in phase I
Miyapur – L.B.Nagar (29 km ; 27 Stns)
Jubilee Bus Station – Falaknuma (15 km ; 15 Stns)
Nagole – Raidurg (28 km ; 24 Stns)
Total no of stns – 66 ; Interchange stns - 3
Project Cost : Rs.14,132 Cr. (USD 2.17 bn)
Rs.1,458 Cr. (USD 0.22 bn) (10%) as “Gap Funding” by GoI and balance by Concessionaire L&T (Rs.12,674 Cr. (USD 1.95 bn) i.e., 90%)
Additional Rs. 3000 Cr. (USD 0.46 bn) by GoTS for land acquisition , shifting of utilities, R&R , pedestrian facilities, urban redesign , etc.
CP: 35 yrs +25 yrs
269 acres (109 Ha) for 3 Depots and P&C areas at 32 stns (L&TMRHL – 17 & HMRL – 15)
Property devtpt through use of air space – property cannot be sold
Lease rentals during CP to cross subsidize passenger service losses
Revenue model: Avg. 50% from passenger fares; 45% from lease rentals; 5% Misc. (Advt.; parking etc.)
Property + Rail system to revert to GoTS at the end of CP

Hyderabad Metro Rail Corridors – Intermodal Integration, P&C areas & Street parking



Metro Rail & Urban Redesign

- City for **citizens** not cars
- People **friendly** city
- City for **children**, old men & women
- Gender **equality** & women emancipation
- Democracy & **public space**
- Public space & **poorer** sections
- Reducing distances & improving **accessibility**
- Affordable transportation with comfort
- Improving **productivity** & enabling **quality time**
- Promoting **family values**
- BAQ & improving **livability**
- Improving **competitiveness**
- **Brand equity** of Hyderabad

Metro Rail for a Global City

(Works in Progress)

Before



During



Uppal Depot



After



Row of well shaped piers (pillars)



Aesthetic construction of elevated viaduct



Cantilever type Metro station resting on the central pillars



Metro Viaduct crossing flyover



Concourse level of Metro Station



Platform level of Metro Station



Staircases and Escalators of Metro station



Ticket Vending



**Automatic Fare
Collection (AFC) gates**



Facilities provided for differently abled



Current Status of Hyderabad Metro

64 km foundations (89%); 63 km piers (88%); & 58 km (80%) of viaduct completed so far

Depot works at Uppal (100%) & Miyapur (100%) completed so far and precast yard works at Uppal and pier & viaduct works etc., in full swing

57 Train sets (3car) arrived & Test runs in 2 stretches (20km)

Installation of Signaling, Telecom , Track OHE in full swing

2 stretches Nagole – Mettuguda (8 km) & Miyapur – SR Nagar (12 km) completed and got safety certification from CMRS

Targeting to open 30 km (Miyapur-Ameerpet 13km + Ameerpet-Nagole 17km) by November end this year

Urban Rejuvenation @ Metro stns

(Streetscaping, Parking & Pedestrian Facilities)

Urban Rejuvenation @ Metro stns

Segregation of main carriage way & service roads

Seamless integration with PT & IPT

Guided pedestrian facilities

Access for differently abled

Bus bays, auto bays, park & ride, kiss & ride, Uber/Ola bay etc.

LMC with merry go round facility & NMT (bicycles etc.)

Street furniture & landscaping

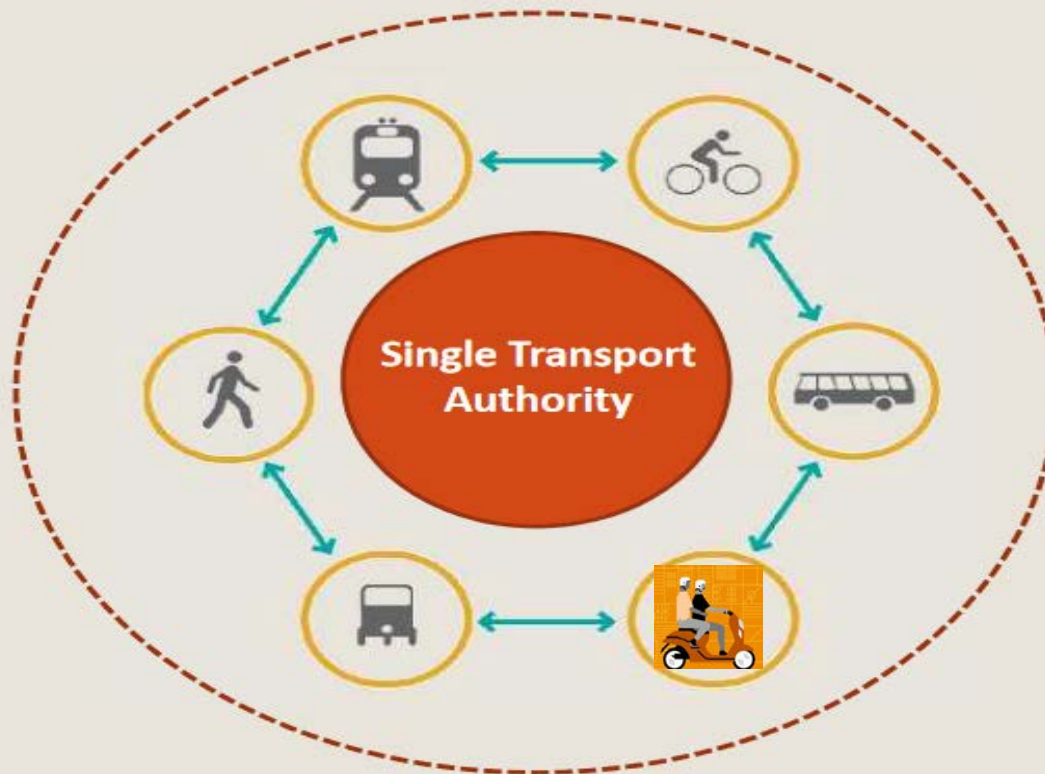
Illumination, signage and other safety & security features

Comprehensive Transportation Solution:

Traffic management & LMC @ road level → desired result for decongestion

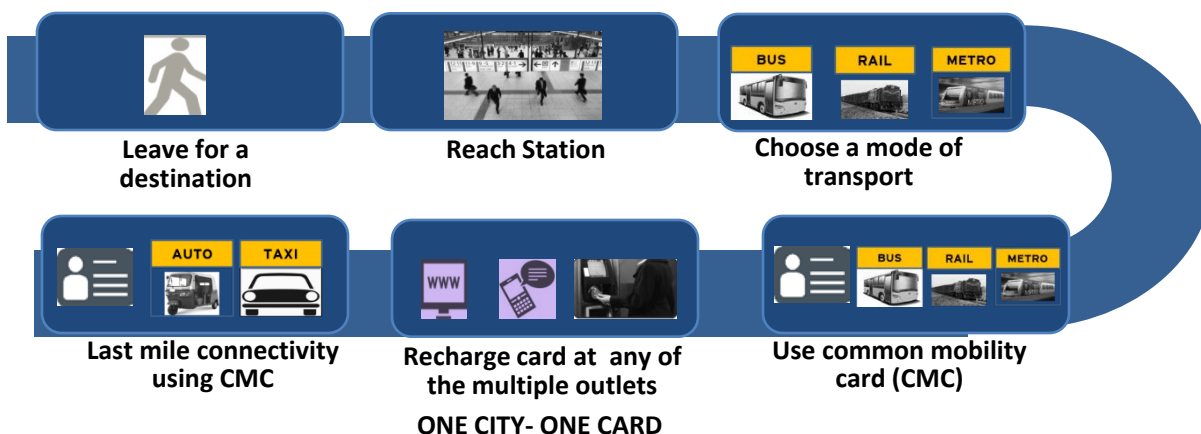
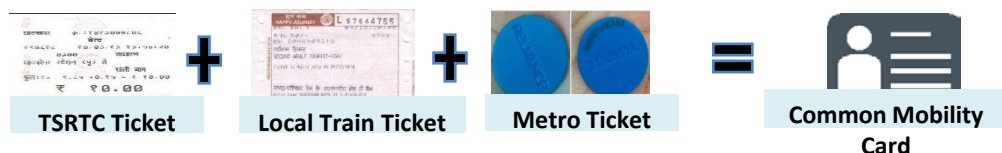
Intermodal Integration

- Seamless Integration – Commuters switchover between different modes without 'time loss' and 'discomfort' using a single ticket over all the systems

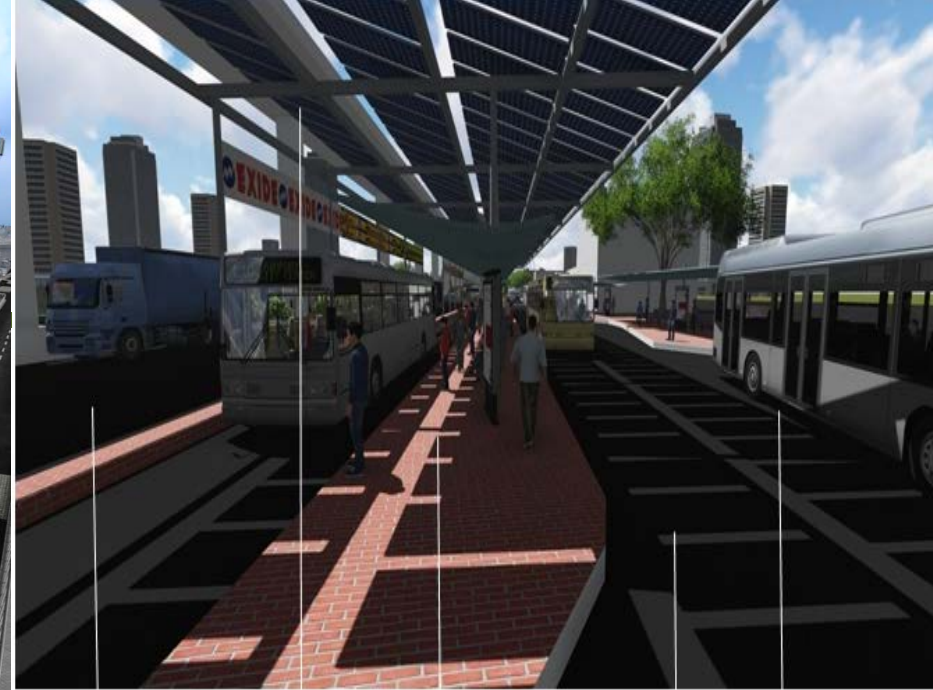


Mobile APP & Ticketing system

- ✓ A comprehensive transport solution APP
- ✓ The APP provides information on all modes of transport for a journey. i.e. TSRTC bus, MMTS, Metro, Auto
- ✓ Commuter will get update on nearest TSRTC bus stops
- ✓ Live information on bus frequency at TSRTC bus stops is needed for benefit of commuters.

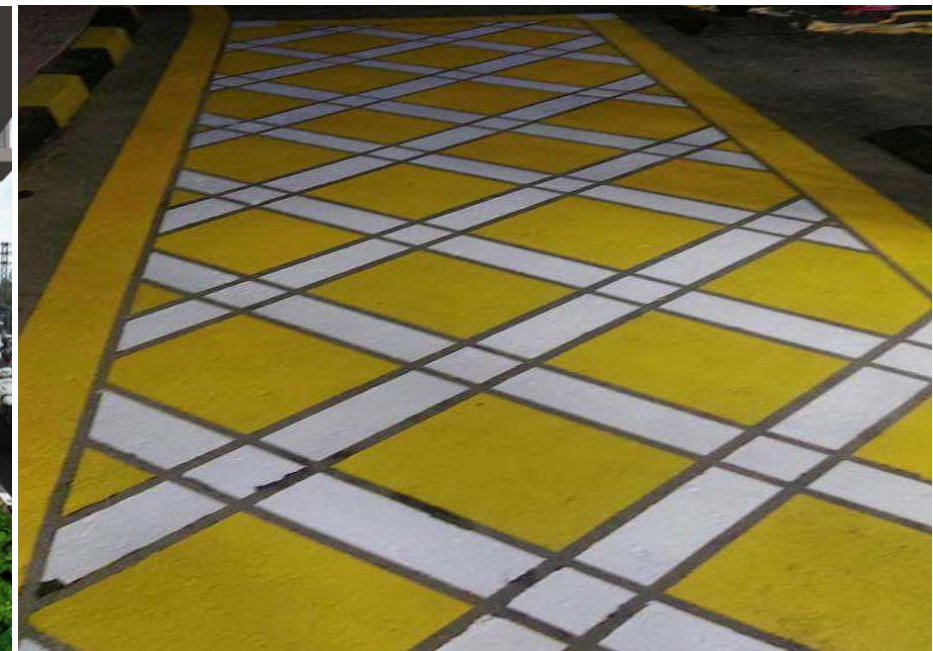


Suggested scenario for ticketing system



14M WIDE HIGHWAY P.V SOLAR PANELS CITY SERVICE BUS STOP 7M WIDE SERVICE ROAD INTER-CITY BUS STOP

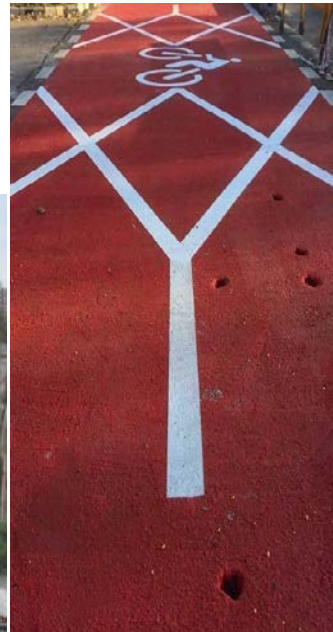
Integration of Bus, car & Auto bays



- ✓ 400 Bike Stns with 10,000 bicycles - software & hardware for securing & issuing bicycles
- ✓ Operate & maintain bike stns



Location of bike stn @ each Metro stn



Bike stn @ Nagole Metro stn

Electric vehicles @ Metro Stns

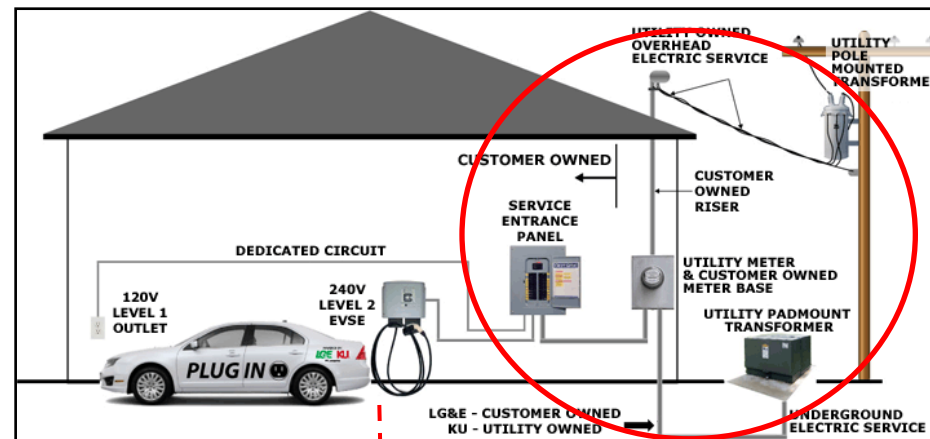
- Electric Vehicles (EVs) @ all Metro Stns for Feeder trips, MRT/Carpool & Short trips
- EVs & Feeder buses connect inner residential areas to Metro stns - discouraging usage of personal vehicles

Advantages of EVs @ Metro stns:

- Reduction of Carbon footprint
- Affordable commute cost
- Easily manoeuvrable *vis-a-vis* larger buses & cars
- Reduction in noise levels
- Reliable mode of transport
- Provides employment opportunities



Proposed charging facility @ Metro stn



Customer side

Utility side





Urban Rejuvenation works done by HMRL along Metro corridors & Stations





Urban Rejuvenation works done by HMRL along Metro corridors & Stations



Miyapur & other Stns

Devpt of sidewalk on both sides of 4.5m to 15m (15ft to 50ft) wide with eco-friendly paver blocks (700m length) & access control railing in Miyapur – Hydernagar stretch

2 lane service road of 7m (23ft) on either side with paver blocks/ BT

Bicycle tracks

Bus bays, auto bays, bays for EVs etc., of adequate space

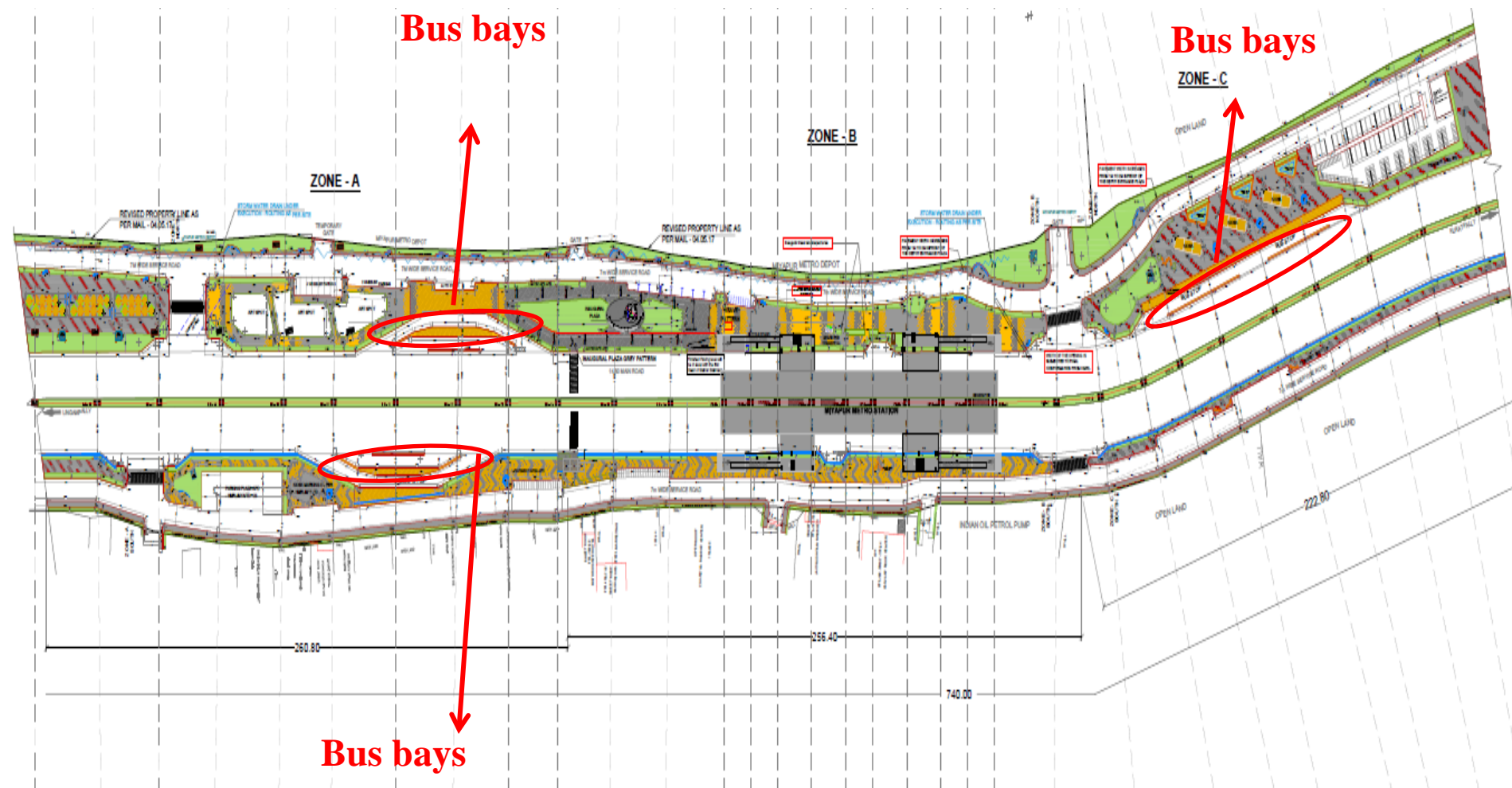
1.5 m wide Green belt along the service road

Kiss & Ride; Park & Ride facilities for pvt vehicles

IPT bays, Bicycle stns etc

Street furniture & beautification

Overall street design plan of Miyapur Stn





**Details of street level planning
@ Miyapur stn**





Ongoing street level works @ Miyapur stn





**Ongoing street level works
@ JNTU stn**



Kukatpally



Tarnaka





Ongoing street level works @ SR Nagar stn



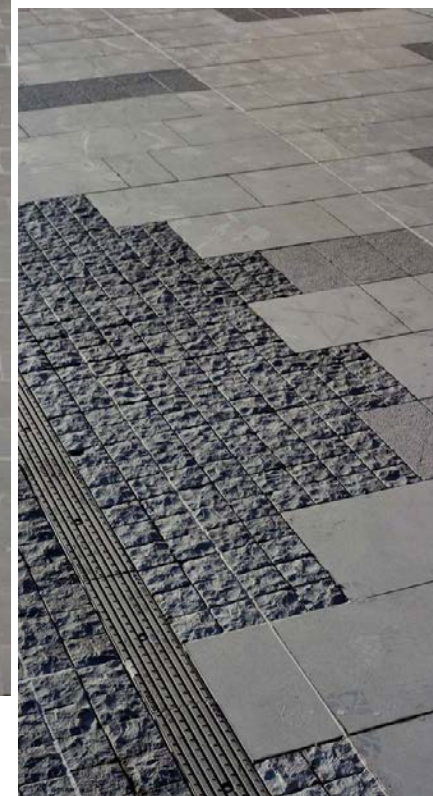


**Proposed devpt @
Rasoolpura Stn**





Rendered images and proposed templates for Rd.36, Jubilee Hills



Interactive seating with locally available material



Proposed vertical gardens & green clusters for Rd.36, Jubilee Hills



Proposed street furniture @ Metro stns





CODATU 2017

Awards Galore

(Several Global & National Awards in the nascent constn stage itself)

1

“Global Engineering Project of the Year 2013” Award by Global Infrastructure Forum in New York



2,3
&4

RoSPA (Royal Society for Prevention of Accidents) ‘Gold’ Award for Construction Safety and Occupational Health for the years **2013**, **2014** & **2015** at Glasgow (UK)



5,6,
7&8

“Best Metro Project” for the years **2013** & **2014** and “Best Upcoming Metro Rail” for the years **2015** & **2017** by the Construction Week India, Mumbai



9

“American Concrete Institute (ACI) Award” for the year 2013 at Mumbai



American Concrete Institute

10,
11&12

“International **Safety**, **Quality** and **Environment Management** Awards” for the year 2015 by ISQEM at United Kingdom



13

“Skoch Platinum Award” for the year 2016 at Hyderabad



SKOCH GROUP
GROWTH | LIVELIHOODS | EQUITY

14

“Best Upcoming Metro Rail” by ITP Publishing Group at the 5th Annual Metro Rail Summit 2016, New Delhi



15

IGBC Platinum Rating for HMR Stations by IGBC (MRTS) for the Year **2017** at Hyderabad



Indian Green Building Council



Thank you