



MMRC

ADDING NEW DIMENSIONS

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METRO CUBE

A MUMBAI METRO RAIL CORPORATION NEWSLETTER



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MD Speaks

Ms. Ashwini Bhide, IAS

As the Nation has celebrated 73rd Independence Day, the Project accomplished 3 tunnel breakthroughs in first fortnight of August taking the count to 17 and the tunneling completed has crossed 60% mark. Another important achievement is unveiling of rolling stock model of at the hands of Hon. Chief Minister Shri Devendra Fadnavis. The Rolling Stock design; the interior and exterior were blended to the design theme of this corridor named as "AQUA Line". The Rolling Stock will be designed for driverless train operations with AC, LCD screens, digital map indicators, fire extinguisher, smoke detectors, voice communicators for emergency, public address systems and dedicated wheel chair area for disabled commuters.

While the tunneling is progressing consistently, the station works in all packages are also progressing at steady pace. Some of the key feature accomplished this month were the casting intermediate slab (above car park) at Cuffe Parade Station.

Continued on Page 2

Rail-cum-road Rescue Vehicle

MD Speaks

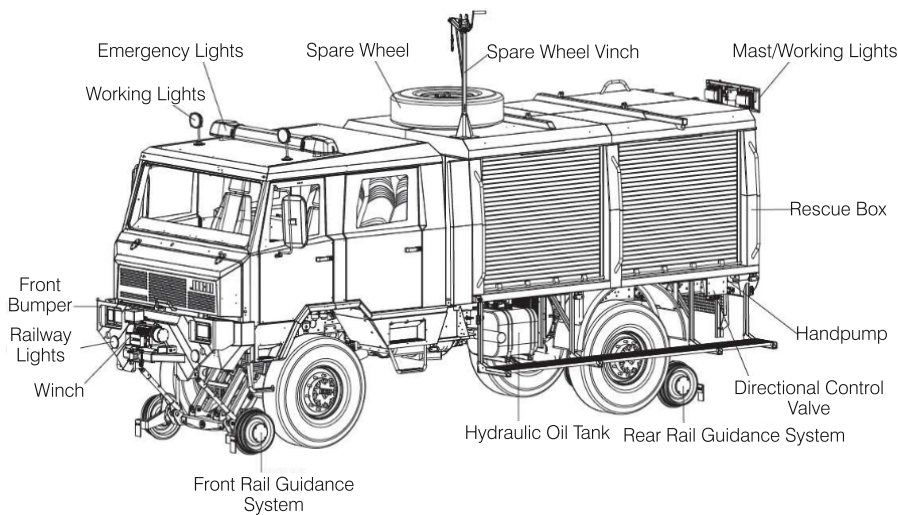
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Rail-cum-road Rescue Vehicle (RRV) is a self-propelled rescue vehicle capable of running on rails as well as on road. It is used for materials, tools and workman movement for re-railing & rescue operation of train in emergency.

RRV will cater to the 33.5 km fully underground stretch of Metro-3 (Aqua Line) for rescue and main-line maintenance works. RRV will be parked in the Maintenance Depot.

Composition

Rescue vehicle has both conventional rubber tyres and flanged rail wheels (for guidance only). A diesel engine is used as main power source with standard truck, manufactured with power equipment and control system mounted on the chassis. The traction is through rubber tyre. The equipment box mounted on the truck is having doors which opens from side or back. It consists of various tools as re-railing equipment, rescue equipment and emergency lights which shall be used in case of emergency.



RRV - Schematic Diagram

Operation

In case of road operation, flanged rail wheels are lifted, and RRV runs on rubber tyres. For rail operation, propulsion is mainly over rubber tyres and flanged rail wheels are free rolling for guiding vehicle on rail. Steering is locked in this operation. The cabin has a capacity to carry 6 workmen along with the driver.



Road-cum-rail Rescue Vehicle

Requirement

In case of derailment of train or any accident in particular section of main line, the RRV is sent by road or by rail to the accident site, for re-railing of train, rescue of passengers stuck in the train and toeing of the train from the main line to siding or in Maintenance Depot, so that the operations on the main line and depot can be restored in minimum time.

The package teams have made adequate arrangements that the scheduled mass concreting can continue without hindrances despite heavy rains.

On the Systems front, 3rd contract on Tunnel Ventilation & Environmental Control System (TV&ECS) was awarded to Voltas Ltd. Scope of the contract includes designing, manufacturing, installing, testing & commissioning of TV&ECS for the section of Mumbai Central to Cuffe Parade.

Continuing the process of information outreach through various engagements, a mobile photo exhibition has been initiated starting with at Mantralaya's Trimurti hall on 13th, 14th and 15th August, showcasing the magnitude of Metro-3 work across different locations of Mumbai. The exhibition will travel selected institutional venues in Mumbai, preferably educational institutions. This would give opportunity for the students and teachers and common citizens to get a glimpse of the project.

Students competition on Station Area Planning received an encouraging response and this month our review committee reviewed all the entries to shortlist 19 entries for next stage. Mentoring workshops were conducted with the participants of these 19 teams to help them develop the schemes further.

My interactions with public and media continued at Advantage Maharashtra attended by senior Govt. & Industry representatives, at TogetherVCAN by Royal Bombay Yatch Club, Mumbai gave us opportunity to present the project and benefits and address citizens concerns.

By continuing uninterrupted work even during incessant downpour, Team MMRC has demonstrated that their spirit can neither be dampened nor pace of work would be slow for any reason. We appeal to the citizens to bear with the inconveniences and cooperate with us to accomplish the task of delivering the world class transport system for the millions of Mumbaikars.

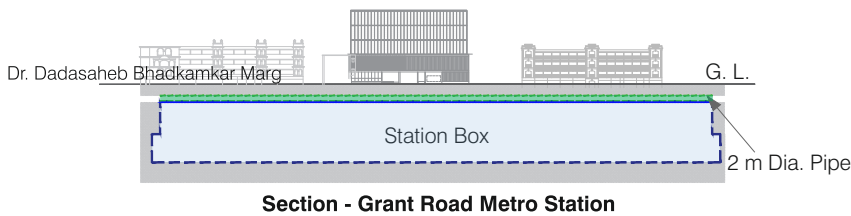
Handling of Encountered Utilities

Grant Road Metro Station:

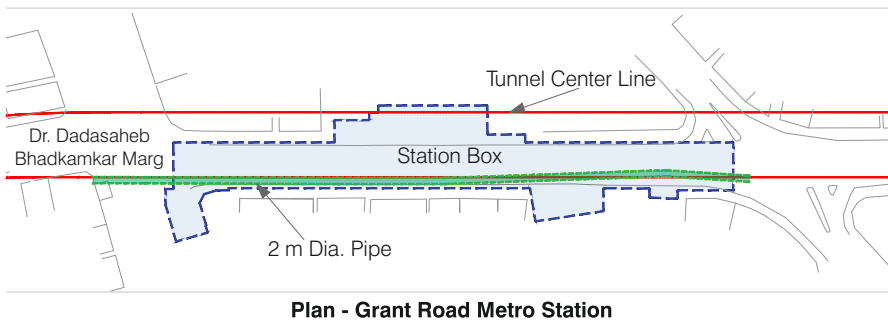
The Grant Road Metro Station is planned beneath the Dr. Dadasaheb Bhadkamkar Marg. There was existing 1625 mm X 2450 mm sewer line which was to be either supported at existing position or diverted for Station construction work. Available land between Station box and the property line is not sufficient to divert the existing sewer line. Therefore, no option was left other than supporting it in existing position. Since the sewer line was very old, supporting in existing position was also not possible. Hence, a new 2000 mm dia. Glass Fiber Reinforced Polymer (GFRP) pipe was laid adjacent to existing sewer line and the flow was diverted through this line. After diversion of flow to new sewer line, old sewer line was dismantled. To facilitate station excavation below the GFRP sewer line, this line is supported from the traffic decking. After completion of station construction, this supported line will be restored in the same location with manholes as permanent arrangement.



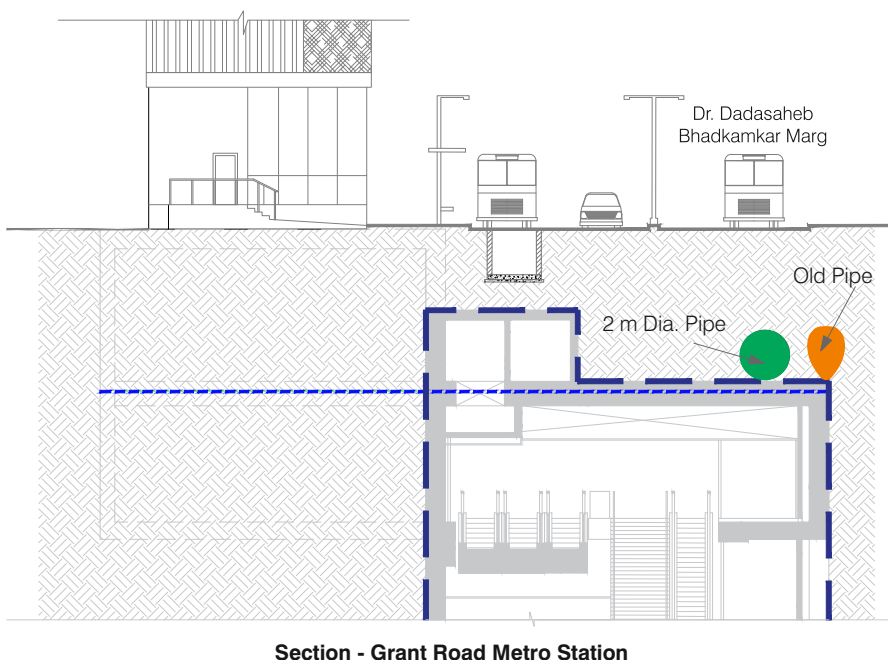
Step-1 Excavating Trench and side supporting



Step-2 Placing of GFRP Pipe above bottom supporting cradle beam



Step-3 Bottom supporting Cradle hung from Traffic decking



All About Construction Package - UGC01

This article is in continuation with the previous article 'All About Construction Package - UGC01', in July 2019, Volume 34.

Package 01 has four stations namely; Cuffe Parade, Vidhan Bhavan, Churchgate Metro and Hutatama Chowk which are located beneath the roads. For construction of these underground stations, traffic movement of respective roads needs to be diverted as roads will be excavated. These roads are having two-way traffic. Steel decks have been constructed, through which one direction is maintained at same place and second direction traffic has been diverted to other parallel roads.

The vehicle speed on these decks is restricted to 15 to 25 km/h. Chequered plates are used for the steel decking. Once the station construction is completed, the contractors will reinstate the road after surfacing it. Construction of steel deck is in progress and so, far 82% work is completed. Following are the steel deck locations at package 1:

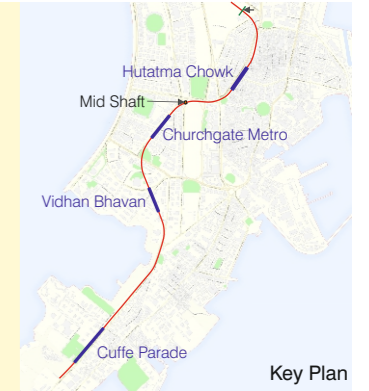
1. Cuffe parade -Capt. Prakash Pethe Marg, service Rd.
2. VidhanBhavan road - Free Press Journal Marg
3. Churchgate - Jamshedji Tata Road
4. HutatmaChowk - D.N.Road



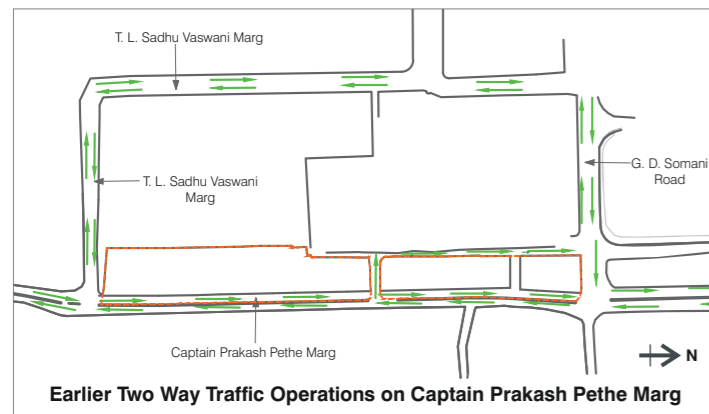
Steel Decks at Vidhan Bhavan Station



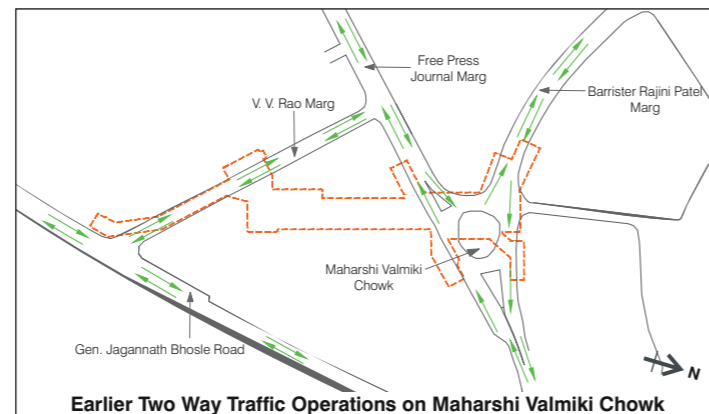
Steel Deck at Churchgate Metro Station



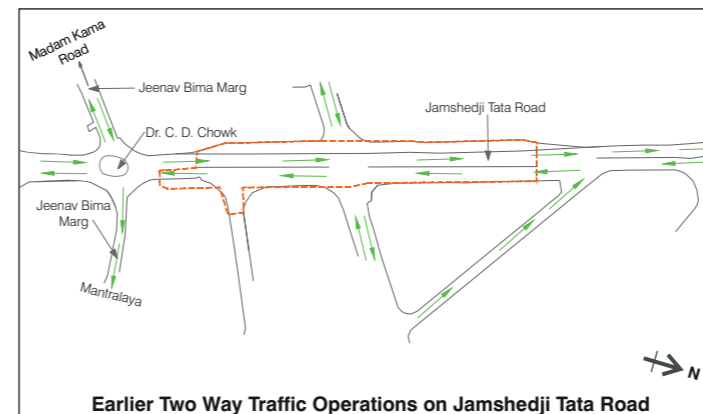
Key Plan



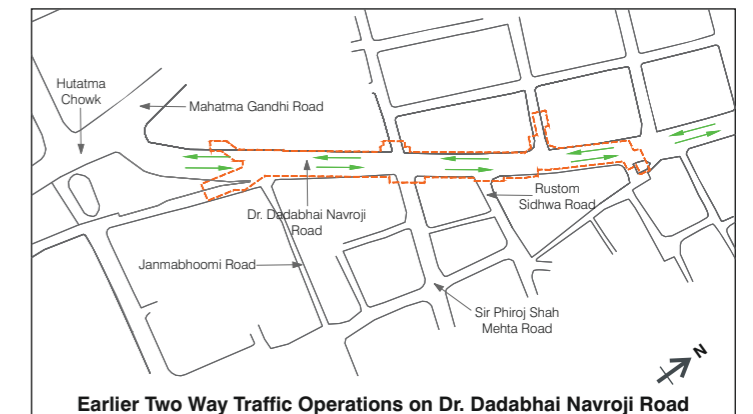
Earlier Two Way Traffic Operations on Captain Prakash Pethe Marg



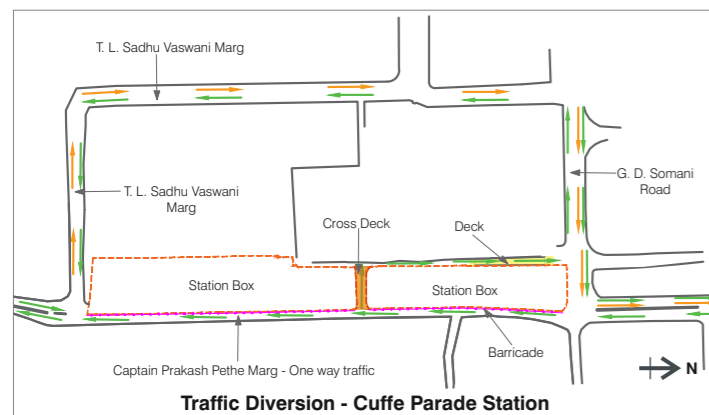
Earlier Two Way Traffic Operations on Maharshi Valmiki Chowk



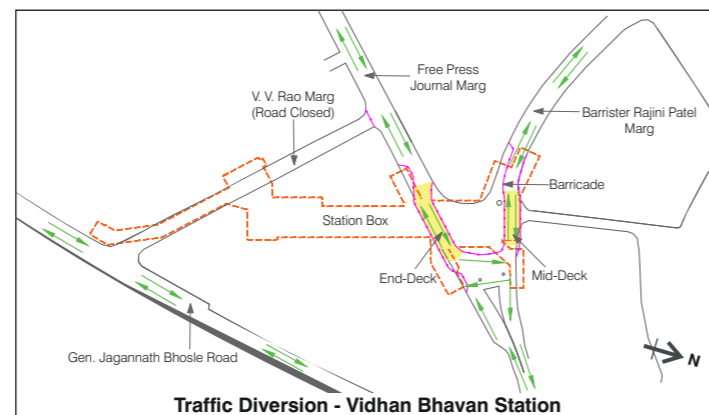
Earlier Two Way Traffic Operations on Jamshedji Tata Road



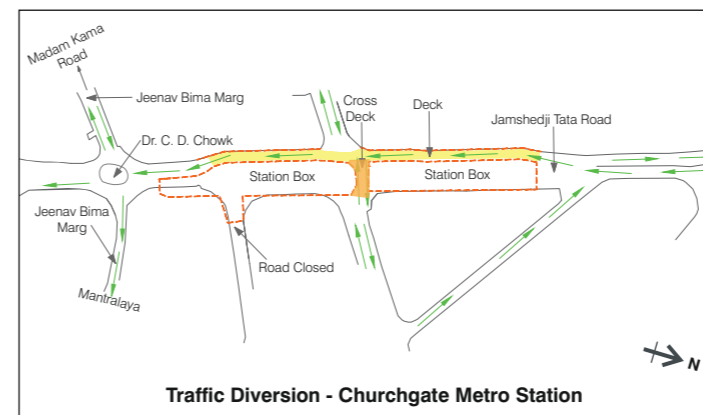
Earlier Two Way Traffic Operations on Dr. Dadabhai Navroji Road



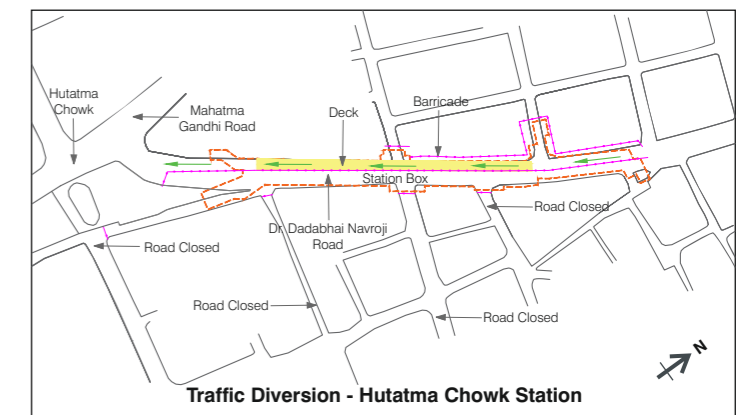
Traffic Diversion - Cuffe Parade Station



Traffic Diversion - Vidhan Bhavan Station



Traffic Diversion - Churchgate Metro Station



Traffic Diversion - Hutatma Chowk Station

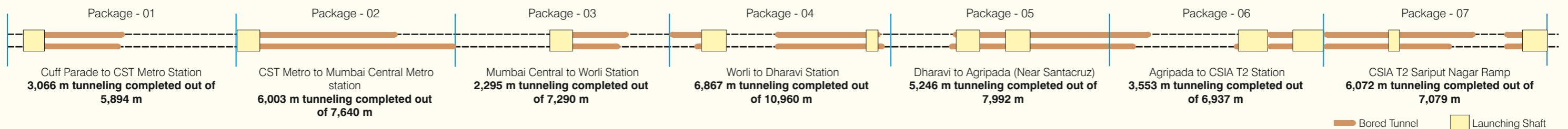
North bound traffic on Captain Prakash Pethe Marg will be diverted via Sadhu Vaswani Road and G. D. Somani Road temporarily, south bond traffic to continue on Captain Prakash Pethe Marg.

Reduced central island at Maharshi Valmi Chowk. Two wa traffic operations for Free Press Journal Road, Barrister Rajini Patel Road and Vidhan Bhavan Marg at the roundabout via decking.

Traffic of Jamshedji Tata Road coming from Colaba side, diverted to Nitaji Subhash Chandra Bose Road via Madame Cama Road which connects to Jamsheji Tata Road through Veer Nariman Road.

Traffic coming from Colaba side using Dadabhai Navroji Road, diverted through Karmaveer Bhaurao Patil Road, Hazarimal Somani Road and Purushottam Thakardas Road.

Tunnel Progress Update - As on 31st August 2019



Rolling Stock for Metro-3

MMRC awarded contract to Consortium of Alstom Transport India Limited and Alstom Transport S.A. for procurement of Rolling Stock for Metro-3 corridor. MMRC will procure 31 trains of 8 metro coaches each. To cater heavy passenger traffic and to improve frequency of trains, rolling stock will be procured with driver-less train operations.

To promote “Make in India” initiative of the Government of India, metro coaches will be manufactured in Alstom India manufacturing facility in Sri City, Andhra Pradesh.



Hon. CM Shri Devendra Fadnavis ji unveiled the model of rolling stock for Metro-3 in presence of Ms. Ashwini Bhide and senior officers of MMRC. Metro-3 will be called Aqua Line and the exterior & interior of the train suits the theme.

Theme

1) Dynamic Fluidism: A tribute to the energy flowing throughout the city of Mumbai, the city that never sleeps. Inspired by the vital flow of water and aspiring to offer a fast, efficient and sustainable mode of travel, to become the new lifeline for the people of Mumbai.

2) Color Harmony: People of Mumbai, always on the move, turn to the sea for peace, soothed by its waves and breeze. This inspires the idea of using a unique blend of comfort (beige) and freshness (aqua green), to provide a relaxing and refreshing travel experience.



Metro-3 Rolling Stock Model



Metro-3 Rolling Stock - Interior



Hon. CM unveiled the Metro-3 Rolling Stock

Salient Features:

- Completely air-conditioned coaches with humidity control, safe and comfortable atmosphere inside coach
- LCD screens for information, advertisement and entertainment
- Programmable digital route map indicator
- Passenger Announcement System for easy passenger disembark
- Aesthetically pleasing longitudinal seating arrangement, comfortable with lumbar support, grab poles and rails for standing passengers
- Dedicated space to accommodate wheel-chair for differently abled persons in all cars
- Anti-slip and non-skid floor
- Advanced air suspension for better ride comfort
- CCTV surveillance in each coach for passengers' safety
- Fire detector, smoke detector and fire extinguishers in each coach for protection against fire
- Voice communication facility between passenger and controller in case of emergency

Achievement

It is a moment of pride for all of us that Media Advisor, MMRC, Sanjay Karhade's daughter Gauri Karhade won her first professional Women's Golf Association of India's tour event in only her sixth attempt at the Boulder Hills Golf and Country Club, Hyderabad in August, 2019. She has now qualified to play the Hero Women's Indian Open Golf Championship to be played from October 3 to 6, 2019 which will be telecast live on D-Sport Channel. Gauri turned pro in June, 2019.

Gauri was just 8 when she came across Golf while surfing TV channels. Though Golf is not very popular sport in India, she loved it for the greenery it has around. “I liked the way people play in big garden”, said Gauri when asked why she chose the sport. Gauri credits her coaches Mr.Laurence Brotherhood and Mr.Vijay Divecha for her success. We wish Gauri a life full of successes and happiness.



Expert Speaks

Station Branding with Neighborhood Popularity Ranking

This article is in continuation with the previous 'ExpertSpeaks', in May 2019, Volume32.

Let me introduce a comparison of the best neighborhood ranking in the metropolitan cities done by local society, Paris, New York City (NYC) and Tokyo, and how those rankings are oriented to the transit. For Paris and NYC, a series of google search with "Where to live neighborhood" brought proper sites.

Paris: The "LeParisien", a famous local newspaper, presents a series of analysis about where to live among 385 districts in the Ile de France (Paris Metropolitan), in 8 categories with more than 30 criteria. Transport shows up at the top, in the list of criteria, and other criteria line environment, cost of life, health, education etc. follow.

New York City: "Niche.com" summarizes the ranking all through the United States, and it gives the latest ranking among 1020 districts of the New York City. Its ranking system is totally scientific, with 15 different criteria including commute grade, diversity, education, etc. The customers can make an original ranking according to their preference for walkability, politics, cost, etc.

Tokyo: Tokyo's preferred neighborhood rankings are totally different from above two. Tokyo's rankings are summarized by names of Metro or Railway stations. The "Suumo.jp" 2019 ranking chose Yokohama (JR Tokaido Line) as the 1st, and Ebisu (JR Yamanote Line) as the 2nd. Meguro (JR Yamanote Line) ranked first in the "Lifull" 2019 ranking. Similar station-wise rankings are summarized for other metropolitan cities in Japan like Osaka-Kyoto-Kobe and Nagoya regions. The ranking sites typically display photo of the stations to identify the district.

This comparison demonstrates that the habitation in Tokyo is well integrated into and identified with the transit network and stations. Most residents in Tokyo consider their

life belongs to transit network and they accept the station-oriented ranking rather than district-oriented ranking, which is the ultimate level of TOD. It should be noted that the "Suumo.jp" is the biggest portal site of real estate transaction and this integration of transit with real estate market is supported by real estate companies.

This can be one of the guiding factors to Metro-3's TOD approach. Stations are the core of the community at they give proper accessibility to the local area and other transit services. The whole line itself needs to establish its connectivity to other services, not only physically but also in terms of information, branding imageability and placemaking, marketing activities, etc. This is a new challenge for Mumbai and with proper multimodal planning, such integration can be achieved.

Breakthroughs



MMRC achieved it's three breakthroughs in August month which completes in total 17 breakthroughs out of 32.

15th Breakthrough: TBM Vaitarna-1 tunneled downline of 3.814 km in Package 2 from Azad Maidan to Mumbai Central station by completing the full tunnel length of package-2. It was commissioned on 4th December 2017 and has accomplished its target in 20 months by tunneling at an average rate of 190m/month. The average tunnel depth in this stretch is 20 m below ground level. 2720 rings have been used for tunnel lining.

16th Breakthrough: TBM Tapi-1 was commenced from CSMIA T2 on 22nd April 2019 and completed its 687 m drive in 105 days by achieving breakthrough at Sahar Road Metro Station in Package 6.

17th Breakthrough: TBM Wainganga-3 tunneled a distance 574 m in 126 days at an average rate of 4.55 m/day and achieved breakthrough at SEEPZ Station. With this milestone, Package 7 has completed 5.87 km tunneling of total 7.07 km.

News @ MMRC



16 IAS officers, attending the induction course at LBSNAA (The Lal Bahadur Shastri National Academy of Administration), visited MMRC and interacted with Metro-3 officials. They also visited BKC Metro Station.

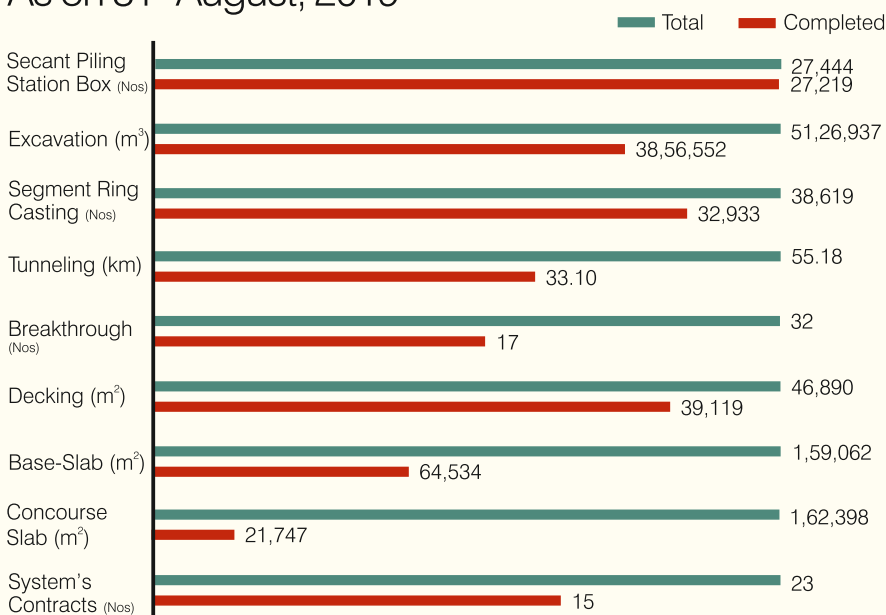


MMRC organized exhibition of breathtaking photographs of ongoing construction activities of Metro-3 at Mantralaya. The exhibits were displayed on 13th, 14th & 16th August to showcase the magnitude and work happening across different locations of Mumbai



MMRC issued the LoA to Voltas Limited for Tunnel Ventilation and Environmental Control System (TVE) Pkg-15, Phase-2 (Lot-2) between Mumbai Central (excluding) to Cuffe Parade (including) Stations.

Project Progress Update As on 31st August, 2019



ORF successfully completed concept level submissions for the participants of the Metro-3 Station Area Management Competition. Committee reviewed all the entries to shortlist 19 entries for next stage.

CONTRIBUTIONS

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