



GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS



DELHI METRO – RESILIENT TRANSPORT SYSTEM (POST – COVID)



DELHI METRO

BY

DR. MANGU SINGH

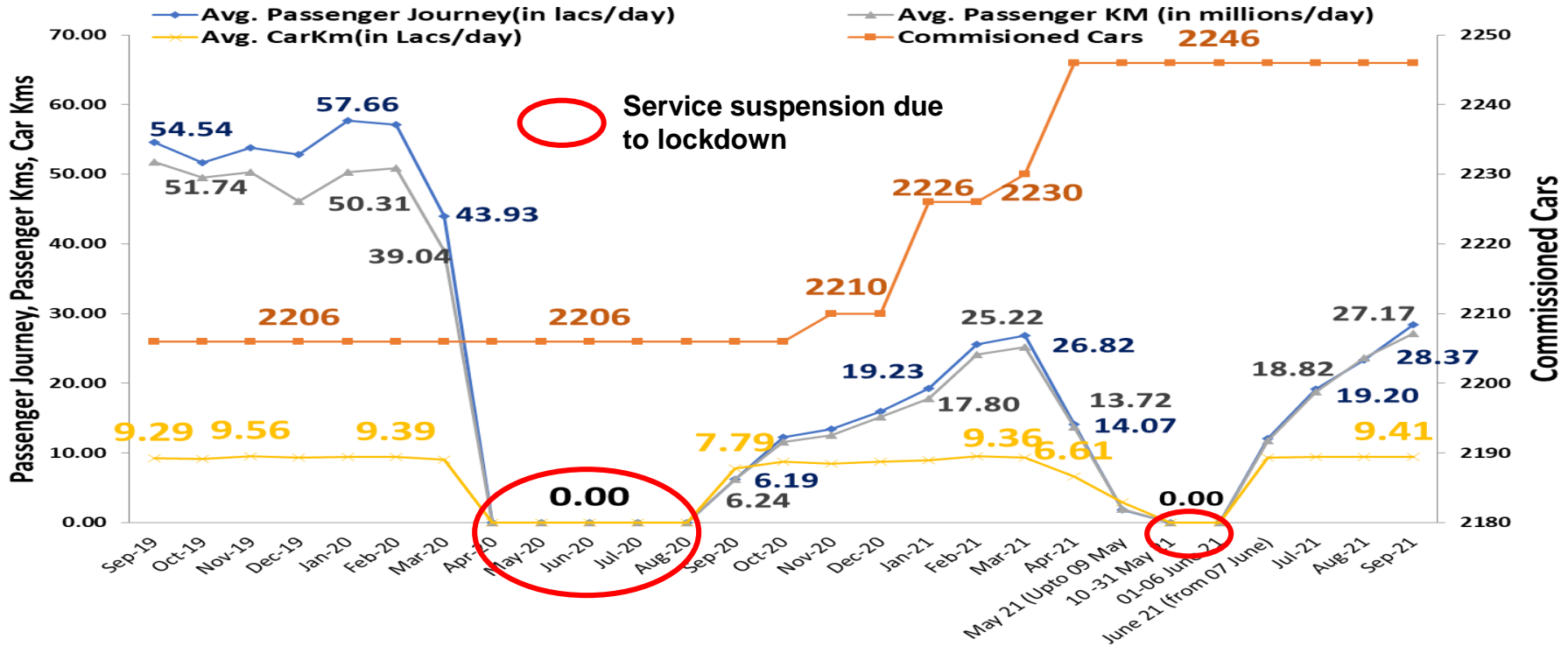
MANAGING DIRECTOR - DMRC



DELHI METRO RAIL CORPORATION LTD

- ❖ A joint venture of Government of India and Government of Delhi, with equal equity, the first company with such structure in India.
- ❖ Company **registered on 1995, started work on 1998** and the first section was **commissioned on 2002**.
- ❖ Currently, the Delhi metro has the **network length of 390 kms with 286 no. of stations**.
- ❖ **Another 104 kms network** of phase-IV is under progress at **different stages**.

IMPACT OF COVID



- The Passenger Journey has decreased **by 48%** from Sept 2019 to Sept 2021.
- The Passenger Kms has decreased **by 47%** from Sept 2019 to Sept 2021.
- But capacity in terms of Car Kms and no. of Cars have increased as compared to per-COVID level.

IMPACT OF COVID

S/N	Particular's	Sep-19	Sep-21	% Variation
1	Per Day Passenger Journeys (in Lacs)	54.54	28.37	-48%
2	Per Day Passenger Kms (In Lacs)	517.39	271.72	-47%
3	Per Day Car Kms (In Lacs)	9.29	9.43	2%
4	No. of Commissioned Cars	2206.00	2246.00	2%

S/N	Particular's	10 Feb 20	28 Sept. 21	% Variation
1	Ever Best Passenger Journey Per day (In Lacs)	66.19	32.47	-51%

Due to COVID, DMRC's services were completely **suspended for 197 days since March 2020**. 169 days from 22nd March 2020 to 06th Sept, 2020 & 28 days from 10th May 2021 to 06th June 2021.

CONFIDENCE BUILDING MEASURES TO ENCOURAGE USE OF METRO

- ❖ On resumption of services, a major challenge was to develop confidence among commuters regarding their safe and hygienic travel in the system.
- ❖ Following measures have been taken to build necessary confidence among commuters:
 - **Thermal Scanning, hand and luggage sanitization** of all passengers at the station entry point.
 - **Intensive and regular cleaning** of frequent **touch points** of stations and in trains at terminal stations. Intensive cleaning of **surfaces with disinfectants**.
 - Adhere to social distancing norms by following means:-
 - ❑ Number of **entry points** at station **were restricted**.
 - ❑ **Increase in frequency** by operating maximum number of **trains** to provide enough capacity
 - ❑ **Live monitoring of Crowd** in network (trains as well as at stations) was done and train **operation adjusted accordingly**.

CONFIDENCE BUILDING MEASURES TO ENCOURAGE USE OF METRO

- ❖ COVID testing facilities were made **available at 32 stations and 20 vaccination camps at 14 different locations had been organized.**
- ❖ Promoting **cashless and digital transactions** to avoid direct interface. **Cashless transactions has increased from 29.11% (Pre Covid 2019-20) to 69.01% (2020-2021).**
- ❖ Escalator Handrail **Sanitization** device based on **Ultraviolet C (UVC) Technology** are installed at 11 escalators. The device is developed by **DMRC in collaboration with DRDO.**
- ❖ **Foot operated switch at lift** for landing call has been installed at 50 lifts of 16 stations.
- ❖ Promote **community participation** by videos, signages and announcements at stations & in trains.
- ❖ **Increase the fresh air intake** in trains / stations Air Conditioning system.
- ❖ **Signage and stickers** pasted at stations (frisking point, Ticket Windows, AFC entry/ Exit gates), platforms and inside trains **for social distancing.**

BLESSING IN DISGUISE

OPPORTUNITY FOR MAJOR MAINTENANCE DURING LOCKDOWN

- ❖ To make use of revenue suspension period, impetus on maintenance was given.
- ❖ Major maintenance work includes
 - Rail replacement,
 - Revamping & remodeling of station
 - Major overhauling of Rolling Stocks.



DEVELOPMENT OF STAFF THROUGH TRAINING DURING LOCKDOWN

- ❖ During lockdown period, Extensive online training imparted to the employees.
- ❖ Videos of all important modules have been prepared.
- ❖ Online training (refresher, induction, reshuffling etc.) to 4471 employees had been conducted

The screenshot shows a Cisco Webex meeting interface. The main content is a slide titled "Some Definitions" with the following text:

- ❑ **Metro Railway Employee**- means an employee duly qualified possessing a valid competency & nominated to undertake & perform the duties entrusted to him.
- ❑ **Authorised Employee**-Means a Metro Railway employee to whom a competency certificate has been issued by the metro railway administration.
- ❑ **Certificate of competency**- means the certificate issued to the metro railway employee after he has been examined for his knowledge of rules, regulations, procedures relevant to his duties & found fit.

The meeting interface includes a top menu bar with options like "File", "Edit", "Share", "View", "Audio", "Participant", "Meeting", and "Help". A participant grid on the right shows several participants with initials in circles, including RK, R7, S, S7, SK, S2, V1, and V1857. The bottom of the screen shows a Windows taskbar with various application icons and a system tray displaying "ENG INTL" and "15:46 22-07-2020".

MEASURES TO SAVE COST WITHOUT COMPROMISING QUALITY OF SERVICES

Energy related initiatives:-

- ❖ **Replacement of Split AC's** with Variable Refrigerant Volume(VRV) at Elevated Stations. **Total 930 Nos of Split Acs of 1653 Tonnage Rating** are replaced by VRV. It will lead to save around **Rs. 2.95 Cr.**
- ❖ **Installation of LED Lights** in place of conventional lights. **134674 nos of lights** have replaced with lead to save around **Rs. 1.47 Cr.**
- ❖ As per UPERC ([Uttar Pradesh Electricity Regulatory Commission](#)), Minimum Consumption Guarantee Charge is payable by consumer. According to this regulation DMRC is liable to pay **Rs. 4 Crores per month** for its Receiving substations in UP area.
- ❖ Due to Lockdown, the total **Load of DMRC was reduced** approximately **to 1/10 of the normal load.**, the supply was **extended from UP area** to Delhi area and **saved approximate Rs. 2 Crores per month during lockdown period.**

MEASURES TO SAVE COST WITHOUT COMPROMISING QUALITY OF SERVICES

Indigenization of maintenance activities:-

- ❖ AFC gate Equipment Control Unit, Smart Media Validator etc were indigenized)
- ❖ AFC Gate Alarm system for information of full Token container was developed in-house.
- ❖ In first of its kind initiative by any metro rail organization in India, DMRC has undertaken the task of overhauling of 259 point machines which leads to extension of their service life by another 10 years.
- ❖ **Approx. 80% of the cost of new point** machines were saved. Savings of approx. **Rs 58 Cr**
- ❖ **In-house repairing of 33 PSD rectifiers out of 61 rectifiers of AEL at Yamuna Bank Depot Lab** was attempted which was successful and very cost-effective.
- ❖ **Cost Saving: Approx. Rs.1.61 Crore** is being saved with this repair work as compared to cost of new PSD rectifiers.

Contd:-

MEASURES TO SAVE COST WITHOUT COMPROMISING QUALITY OF SERVICES

Indigenization of maintenance activities:-

- ❖ An application call SIDM(Signalling Integrated Data Management) for e-logbooks was introduced in Sigalling wing.
- ❖ With this initiative there has been substantial saving both in terms of Man-hours as well as economic saving.
- ❖ In-house upgradation of Bank Note Acceptor (from BNA-5 to BNA-6) of Token Vending Machines has been done.
- ❖ AFC System is well equipped with flexible mode of smart media (e.g. NCMC Card, Smart Card, Smart Token, QR code etc.).
- ❖ In RS-1 Trains, installation of CCTV in trains is being done by Indian vendor. Simple and cost effective design has been used.

MEASURES TO SAVE COST WITHOUT COMPROMISING QUALITY OF SERVICES

As the earning of DMRC has significantly affected, various measures have been taken to curb the operating cost. Some of the additional measures are as follows:-

- ❖ Only essential maintenance activity is being planned.
- ❖ Planning to operate trains at energy saving speed profiles. In energy saving speed profiles, trains move in costing mode as far as possible which saves energy.
- ❖ Rationalization of train time table during early morning and late night hours as per the demand.
- ❖ Many overhead cost/ administrative cost have been curtailed.

RESUMPTION OF METRO SERVICES

- ❖ DMRC has successfully built the confidence through various measures taken by DMRC for safety and hygiene.
- ❖ The restriction were relaxed by the Govt. gradually
- ❖ Consequently, public are willing to use metro for their travel purposes.
- ❖ Long queues were observed after resumption of service.
- ❖ Adhering to Govt. guidelines for complying to social distancing norms, commuters were restricted as only seating is allowed in trains with no standing.



AUGMENTATION OF SERVICES

- ❖ Feeder electric buses are being introduced from Shastri Park for the first time in Delhi on trial basis since 12th August 2021
- ❖ DMRC possesses 174 CNG feeder buses.
- ❖ Adding to this, 25 low floor electrical-buses (24-seater) have been procured. Total 100 e-buses will be procured in future.



LEARNING FROM APTA REPORT

❖ A report on Public Transit and COVID-19 Pandemic: “Global Research and Best Practices” was published by American Public Transportation Association (APTA) . Some of the learnings of the report are as follows:-

- o No direct correlation between use of urban public transit and transmission of COVID-19
- o An analysis of public transit ridership in multiple cities over the past three months shows no correlation with the rise or fall of local COVID-19 cases
- o Mask wearing has been shown to be effective at reducing person-to-person transmission.
- o Public transit riders generally talk little while using public transit.
- o On many urban public transit systems, air flow is enhanced and doors are frequently opened and closed.

“The public perceptions and press coverage of COVID-19 transmission risk in transit has created more fear than is warranted by the evidence.” By Dr. Thomas Matte

Thank You

for

Giving me an opportunity
for sharing my views

