Guidelines for
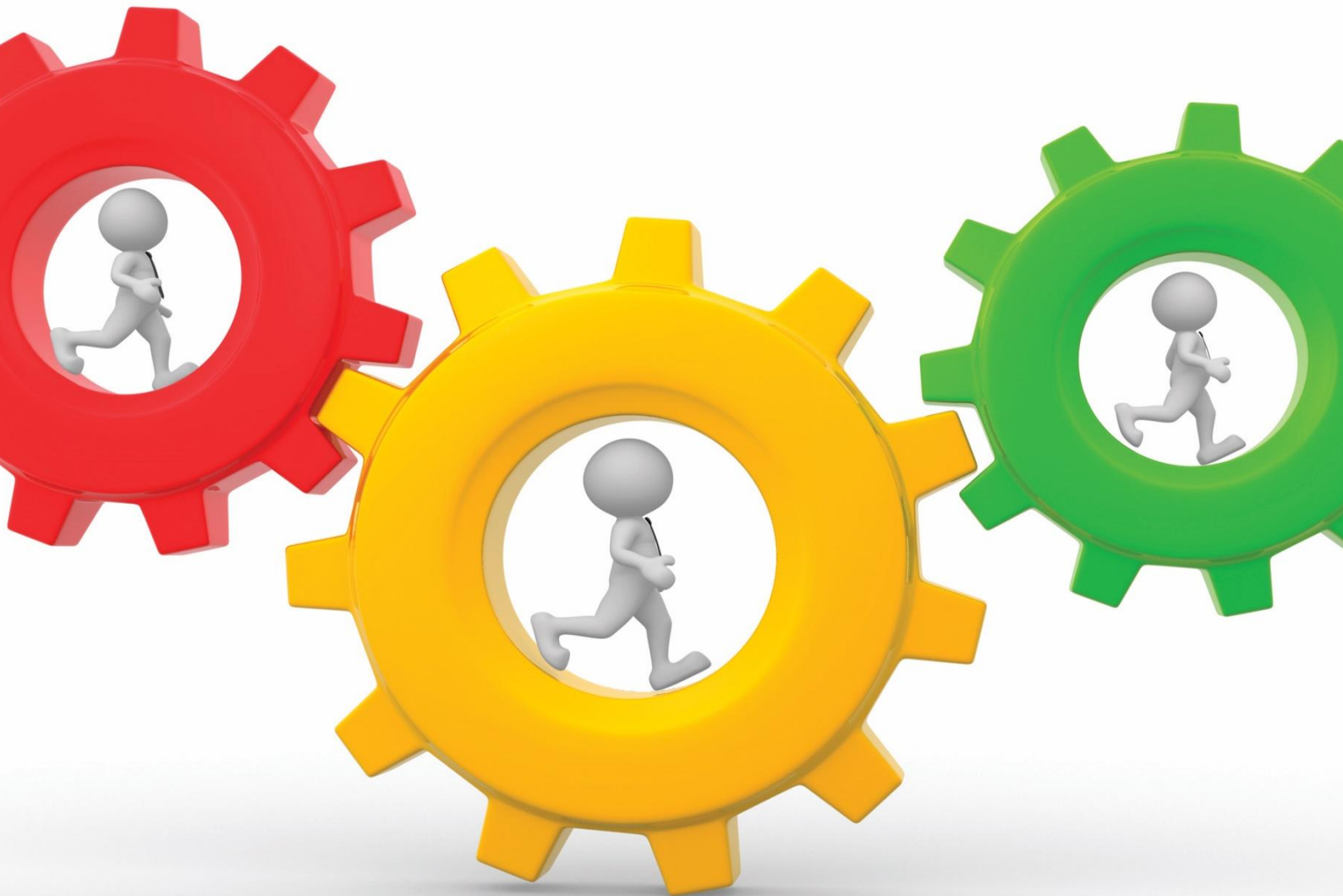# *Public Transport and Feeder Modes considering Social Distancing Norms*

Commuting in Urban Area during Covid-19 Pandemic

May 2020

CSIR **C**entral **R**oad **R**esearch **I**nstitute

General

Public transport which include buses and metro plays major role in people mobility in urban and rural areas of India. Presently, around 10 cities are having operational metro network with a total network of more than 700 kilometers and about 525 metro stations. Similarly, more than 1.6 million buses are registered in India, and the public bus sector operates 170,000 buses carrying roughly 70 million people per day.

During the present prevailing COVID-19 pandemic situation, there may be high risk for commuters travelling by metro and bus and chances of spreading of virus are also very high. As recommended by World Health Organization (WHO) and Government Health Ministries recommended to maintain social distance of 6 feet to control the spread of the virus through person-to-person.

In Delhi, more than 80 lakh trips are made by public transport i.e. Bus and Metro in a day. It's always been a challenge to manage the gap between demand and supply of commuting. This gap is going to be further widened due to COVID pandemic requiring the social distancing practices.

In view of this, a systematic and strategic approach is required to be adopted to move ahead during the COVID-19 pandemic. A gradual change in demand/ supply and adoption of circumstances by commuters is expected. The great challenge of both sides has to be dealt with carefully. At one side, it is expected that more commuters may prefer to travel by personalized vehicles (car and two wheelers) and on the other side, public transport capacity (fleet and frequencies) will be reduced while maintaining social distancing.

Approach

Multi dimensional approach is required to be adopted at every stage of public transport commuting. It must cover the walking from home to bus stop/ metro station, using feeder modes like cycle rickshaw, electric rickshaw, shared auto rickshaw etc., area of bus stop and metro stations and while travelling inside the bus and metro to reach destination. Taking into the account of total leg of the trip from origin to destination, broadly two approaches need to be checked and designed for possible implementation considering social distancing.

Approach A: Redesigning the facilities suiting to social distancing

➢ Painted Marking for social distancing to maintain the required distance around bus stop areas, on footpaths, etc.
➢ Increased stopping time for commuter boarding/ alighting for bus and metro.
➢ Separate gates for boarding and alighting while travelling by bus and metro.
➢ Limiting number of commuters inside bus/ metro coach.
➢ Separate lane for buses to improve the capacity of bus service.

These aspects required to be changed dynamically based on users' satisfaction levels. Every approach is further required to be supported by technology interventions.

Approach B: Reducing the demand and Capacity Enhancement

➢ To reduce the demand on public transport by encouraging short trips by non-motorised modes (bicycle) and

intermediate public transport modes (cycle rickshaws, autos, etc.)

➢ Shops/ markets/ offices having public dealings to be opened for longer duration to avoid larger gathering and crowd.

➢ Encourage advanced booking for bus/ metro use (time slot based) for the extent upto 80%.

➢ Staggered timings for office goers

PEDESTRIANS

Footpaths

Pedestrians on road are large in number and spread all over the road network. However, there are roads with footpath as well as without footpath within the road network. On roads without footpaths, pedestrians do walk near the edge of roads. Social distancing in an area (footpath or area near edge of the road) can be guided by dividing the area with rectangles (boxes) for each person. Figure shows the marking for footpaths with widths less than and more than 1.5 m.

FOOTPATH WIDTH LESS THAN 1.5M — FOOTPATH WIDTH MORE THAN 1.5M
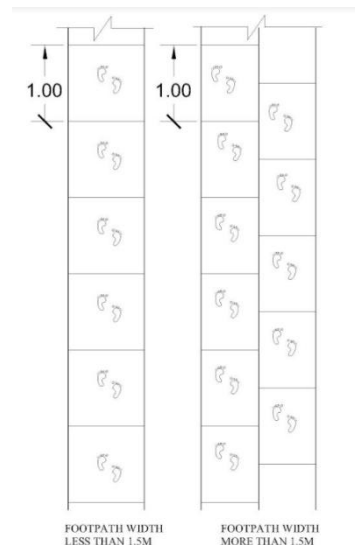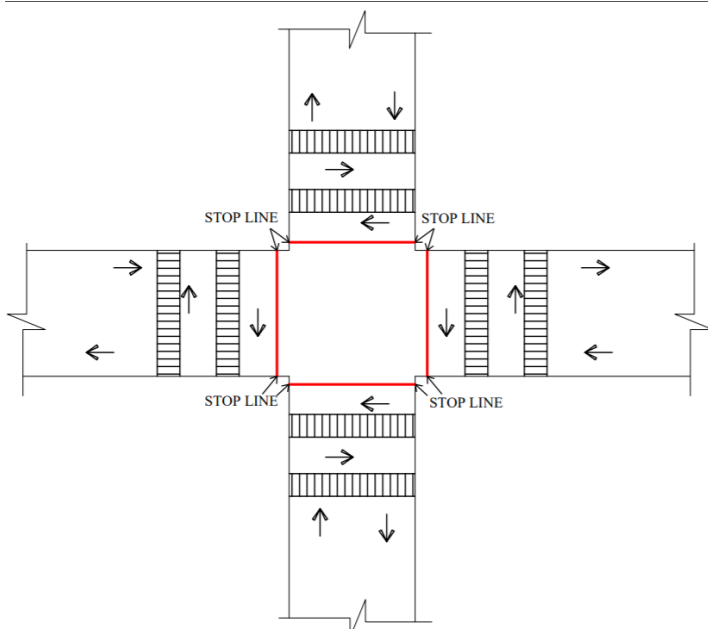
Intersections

Pedestrians crossing at zebra crossing is to be split direction-wise for better management of social distancing at intersection.

This can be done by splitting zebra crossing in two parts for each direction or by marking two separate zebra crossings as shown in figure. Decision of providing one or two zebra crossings can be based on availability of space and pedestrian volume.

To accommodate social distancing, pedestrian green time of signal requires to be increased by two times wherever additional space for crossing is not possible to provide

In case of Delhi, the advisories issued by DMRC as well as CISF are pertinent to smooth functioning of metro services in the post COVID 19 world. In addition to the above the following actions are proposed for effective prevention of spreading of COVID 19:

➢ *Boarding/ alighting times:* Since each coach has a single opening in the middle; separate boarding and alighting times are to be proposed. Commuters should be first allowed to disembark and then should be allowed to board the coach.

➢ *Feeder bus services:* Social distancing norms should also be followed in feeder buses. 60 feet bus should carry maximum of 18 riders (commuters) and 40 feet bus should carry only 12 riders. The seating arrangement should be as shown in the figure below.
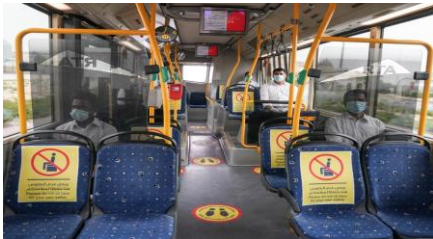
➢ *Subway/ Lift/ Escalator: Entry:* commuters enter the metro station either through lift, subway staircase or escalators. They should avoid pressing the button of the lift as the lift is self operated and should also avoid holding the handrail of the escalators. Passengers are suggested to make use of staircases as much as possible.

➢ *Double the dwell times:* Since each coach shall carry only half of its capacity (i.e 25 commuters) it is envisaged that with the social distancing as well as alighting and boarding happening one after the other, the dwell time for each train service could be enhanced by 2 times the normal dwell time.

➢ *Information on vacant Seats in a coach:* Since the number of commuters boarding and alighting at stations is a dynamic phenomenon it is advised that the number of seats vacant within each coach be dynamically displayed at the respective stations/ coaches on the display boards.

➢ *Queuing by commuters on platform:* The commuters are expected to queue themselves as shown in figure at the platforms at the earmarked space for each commuter. The platform space for queue while waiting for transit service should be earmarked using a yellow retro-reflective tapes of size 1.8m X 1.8m.

➢ *Queuing by commuters for tickets:* Similar to queuing on platform, the queues in front of ticketing kiosks and information desks should be earmarked using yellow retro reflective tapes of 1.8 m X 1.8 m from each other.


➢ *Baggage Scanner/ Security Checkup:* For scanning and security check-up, commuters must follow social distancing norms. Baggage scanning machine is the most unsafe place. If any single bag passing through has COVID-19 virus, then all other bags which follows would also get infected. Hence, before putting the bag inside the scanner, it is recommended to put the bag in a plastic bag or paper bag and this paper bag/ plastic bag should be removed just after scanning with proper safety.

➢ *Card scanning:* Commuter should avoid touching tokens or card at the scanning machine, instead they should keep it at least 10mm above the scanning point. This will prevent transmission of virus from one token to another (in case any of the token is carrying the COVID-19).

➢ *Escalator:* In escalators commuters should leave at least 5 steps after the previous commuter has stepped on to an escalator.
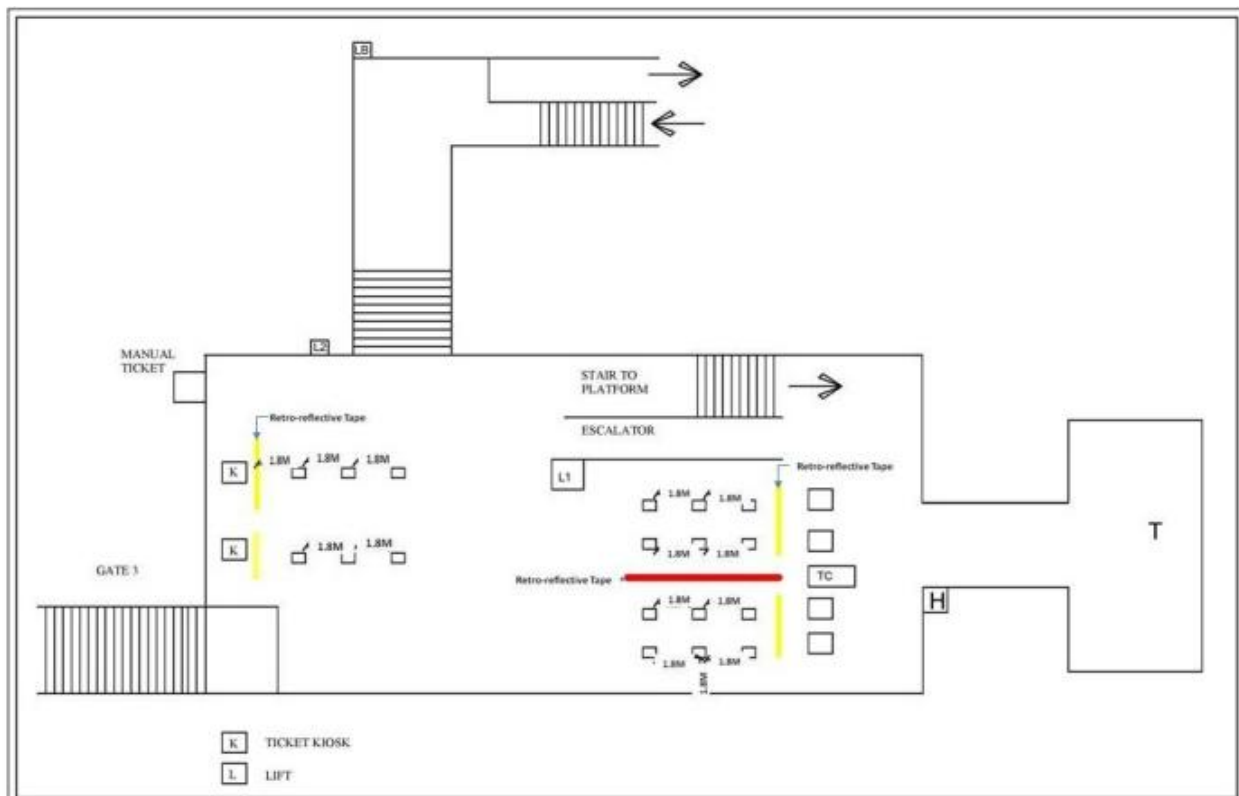
> *Entry gate to platform:* The gates to the platforms should have a solid yellow line (similar to security check points at airports) beyond which only one commuter is allowed to tap their card and make their entry to staircase/ escalator/ lift.

> *Inside the train*: The passengers should sit on alternate seats avoiding seats marked with 'X' marked tapes as shown in figure.

> *Before alighting:* Within metro trains the commuters, on approaching their respective destination stations are advised to stand adjacent to their own seats and not to crowd in front of the exit gate so as to maintain social distancing and disembark such that the person nearest to the exit alights first.

> *Online ticketing:* The use of *Arogya Sethu* e-pass should be encouraged and the on-line ticketing aspect could be introduced into the app.

BUS STOP AND SURROUNDING AREA

Guidelines for Bus Commuters

The Do and Don'ts should be followed by commuters while traveling to prevent/ restrict the spread of COVID-19 virus (See Box 1)

> *Maintain Social Distance:* Maintain a distance at least 6 ft (1.8m) from each other (i) while boarding and alighting the Bus and (ii) waiting at the bus stops/ BRTS stations.
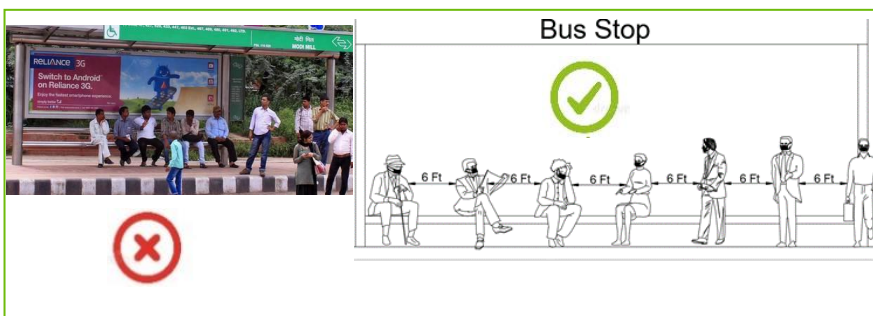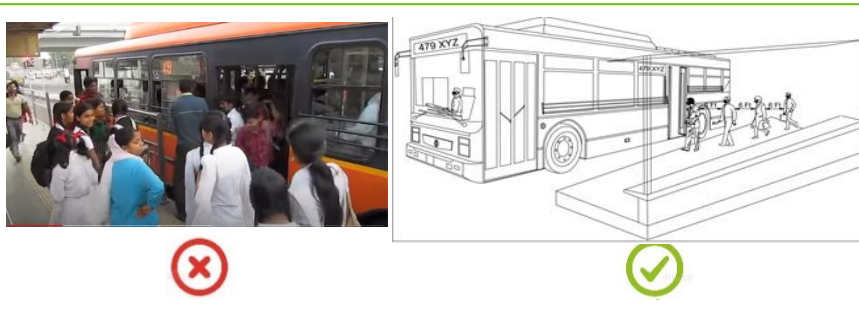
Dos ✓
- Plan your journey by watching the Bus apps/ and other public displays.
- Maintain minimum distance of 6ft (1.8m) with other commuters.
- Avoid touching of surfaces in the bus stops and also in the bus.
- Use proper hand hygiene methods such as gloves and hand sanitizers.

Don'ts ✗
- Do not prefer standing in the bus
- Do not entry from the front gate of the Bus.
- Do not practice foot board Journey.
- Do not prefer to purchase tickets in the Bus, Use daily passes

Box 1: Dos and Don'ts of Bus Commuters to prevent spread of COVID-19

- > *Traveling in Bus:* While traveling in bus, (i) maintain social distance, (ii) sit one person per seat and also diagonally with forward and backward seat commuter, (iii) do not stand in the bus and (iv) avoid touching of


any surface in the bus.

- > *Purchasing Tickets and Smart Cards:* The purchasing tickets in the buses should avoided. The most preferable method is purchase online tickets includes one-day pas, e-ticket, smart card and other e-payment methods (Paytm/ BHIM/UPI).

Guide lines for Bus Operators

The Dos and Don'ts of possible activities are presented in Box 2. The following guidelines suggested to restrict the spread of virus by bus operators.

- > *Rear door boarding and Alighting:* The purchasing tickets in the buses should avoided. The most preferable method is purchase online tickets includes one-day pas, e-ticket, smart card and other e-payment methods (Paytm/ BHIM/UPI).
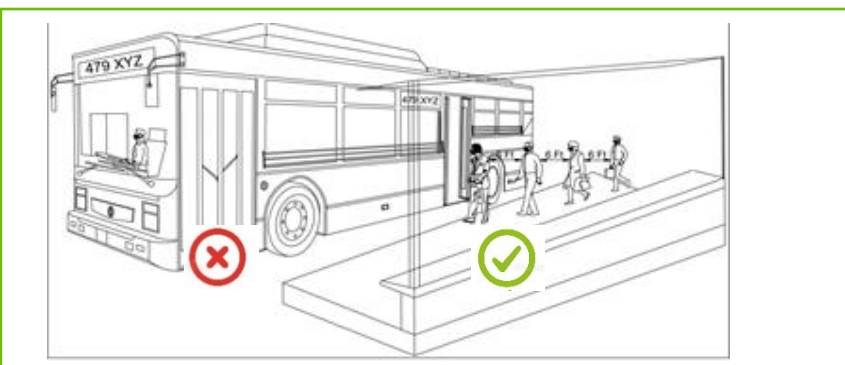
- > *Increasing of Dwell Time:* The dwell time, the amount of time that a vehicle occupies a given stopping bay/ bus stop should be increased since each bus shall carry only half its capacity (i.e. 15-20 commuters).It is recommended that two times

Dos ✅

- up-to-date education and training to all workers on COVID-19
- Issuing of N95 respirator masks to all workers
- Placing commercial hand sanitizer dispensers on vehicles
- Rear door boarding and alighting
- Routine cleaning and disinfection of frequently touched surfaces.
- Staggering seating arrangements to Limit Capacity to 15-20 (50% of Actual Seating capacity)
- Limiting access to the bus driver's area
- Placing posters that encourage hand hygiene of commuters
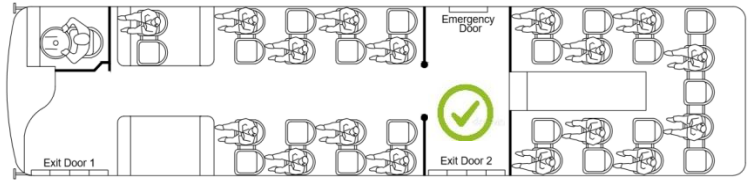- Limiting seating at Bus Stops and stations

Don'ts ❌

- Do not allow standing in Bus
- Do not allow Foot Board Journey

Box 2: Dos and Don'ts of Bus and Bus Transit Operators During COVID

the normal dwell time at un interrupted flow situation (BRT Bus Stations) and 3 times at the interrupted flow conditions (normal Bus stop locations). This will help to commuter to follow the social distancing as well as alighting and boarding happening one after the other.

➢ *Staggered bus seating arrangements:* Limiting seating capacity by providing sign Health advisory. Limit capacity of bus 15-20 (50 % of actual capacity).

➢ *Limiting Access to Bus Drivers Area:* Driver Cockpit area should be restricted by using temporary measures. Ex. Use colored tapes any other low cost techniques.

➢ *Limiting seating at Bus: Stops and Bus Stations:* Limiting seating capacity by providing sign on health advisory.

➢ *Cleaning of Common Areas:* The common areas at Bus stop/ BRTS bus stations should be properly cleaned for every one 30 minutes Interval.

➢ *Automated Fare Collection System* at BRTS Stations.

E-RICKSHAWS, AUTOS AND TAXIS

To follow social distancing while traveling by intermediate public transport modes namely E-Rickshaws, Auto and taxi, following things need to be adopted:

➢ *Apps:* Commuters are advised to use various available apps to make payment in digital mode as a contactless method.

➢ *Partition:* Drivers are suggested to use Plastic sheet for physical separation between driver and commuter as well as within commuters in case of auto/ e-rickshaw/taxi.
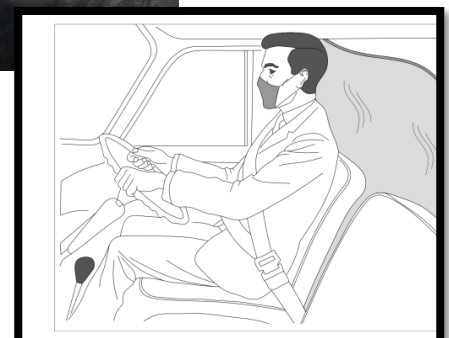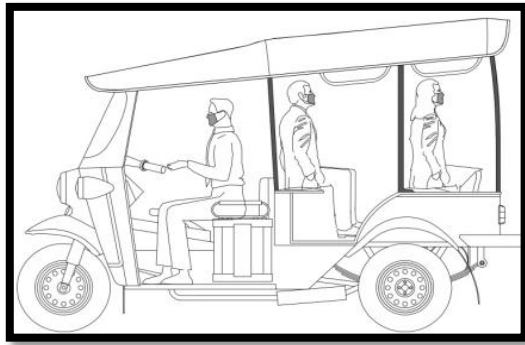
- *One Commuter:* In auto, apart from the driver, only one commuter should be allowed. In case of private car and taxi, it should be shared only among the persons of same household if exigency exists.
- *Parking places:* At parking location of rickshaws, taxi, auto and E-rickshaws proper social distancing norm should be followed while boarding.
- *Self driving car rental* concept can be introduced to avoid touch.
- Also while alighting, care should be taken to park the vehicle at proper

available place with strict following the social distancing norms should be followed as given aside.

- *Social distancing norms* should be visible by yellow tapes/ sticker/ paint/ any other suitable arrangement wherever is required.

Design structure of Queue Building for larger flow outside bus stop/metro/pubicl transportation station

Implementation can be done by providing YellowTape/ Permanent Marking see below
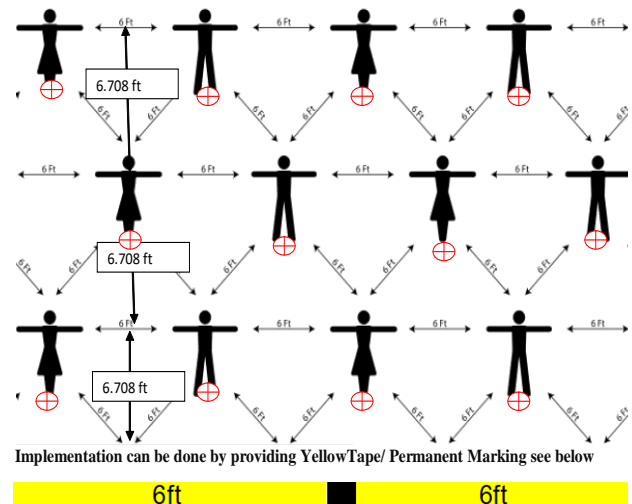
DEMAND REDUCTION STRATEGIES

After lockdown period of COVID-19 Pandemic, commuter movement will increase but it is expected to be a gradual increase. To maintain the social distancing even with lower demand is challenging. Capacity of existing public transport systems gets reduced with the required social distancing approach. In view of this, following strategies are suggested to reduce the demand on public transport:

- *Encourage Short length trips by intermediate public transport modes (rickshaws, autos, etc.).* This will demand better services by these modes which are required to be ensured by designing more stopping locations and/or parking area for these vehicles.

- *Easy access to intermediate public transport vehicles* near entry gates of metro and bus stops.
- *Dedicated path/ lane* to provide faster movement to intermediate public transport vehicles along with public transport vehicles.

- *Staggered days and/or hours* for offices/ markets/ shopping area can be adopted. Five working days for offices and schools can be managed on rotation bases by including Saturday and Sundays. Also, staggered working/ schooling hours to be adopted.

CAPACITY ENHANCEMENT STRATEGIES

During the post-lockdown period, the advisory of avoiding non-essential trips still in force, the trips would be comparably less. Under such circumstances, the aim of public transport authorities should be *maintaining high levels of service despite the reduction of travel demand* to ensure safe distancing while keeping service continuity.

The organization of public transport also working with under staff, enhancing the fleet and frequencies would not be possible, hence the capacity enhancement strategies aim for *optimum usage rather than increasing fleet*. The following strategies can be considered towards capacity enhancement and management of public transport operations:

- *Changes in Timetable* (i) suspending night services and school services (ii) Implementing weekend or holidays timetables (iii) offering on-demand services.
- *Providing dedicated services* to healthcare personnel, patients and any other category of the work force falling under essential services.

- *Readjust routes and frequencies* of some lines to minimise crowds on-board and/or to better serve some destinations (eg. hospitals or supermarkets).
- *Policy towards different time schedule of economic and social activities* would limit and change the impact of peak hours and allow to limit crowds and human density towards public transport.
- *Attractive or targeted offers* to be introduced to encourage the use of public transport during lean period of the day.
- In case of increased travel demands, Government should influence owners of *school buses, charted buses, tourist buses, other mini tourist buses/ vans to use as public transport to enhance fleet of public transpor*t in order to match the gap of requirement of more buses due to social distancing norms (less passengers per bus).
- In order to limit the social, economic and financial consequences impacting public transport, Government should *adopt exceptional measures, prioritize political and financial support* for sustainable urban transport.

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