



उच्च दर्जाची वाहतूक सेवा...सर्वाची!



Pune Municipal Corporation

Pimpri Chinchwad Municipal Corporation

Pune Mahanagar Parivahan Mahamandal Ltd.

## Bus Rapid Transit System – Some Frequently Asked Questions

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### 1. What is BRTS?

Bus Rapid Transit System is a high quality, high speed, customer-oriented public bus transport service.

### 2. When did the concept of BRTS start?

The concept of BRTS started in Curitiba (Brazil) in 1970. Currently, over 160 cities in different parts of the world have successful BRT systems in operation.

### 3. What is Rainbow BRTS?

'Rainbow' is the name given to the Bus Rapid Transit System which will be soon operational in Pune and Pimpri Chinchwad.

### 4. How many cities in India have implemented BRT?

Seven cities in India have initiated BRT projects while only Ahmedabad's Janmarg has evolved and expanded continuously. Indore iBus, Rajkot BRTS and the recently inaugurated Surat system have also received recognition. Twelve more Indian cities are considering the implementation of BRTS in the near future.

### 5. What are the primary features of BRTS?

World over, BRT systems have been developed with a varied mix of features which makes them distinct from a regular bus system. The primary components of a BRT, as identified from various studies as well as from successfully operating systems, are:

- Segregated/ Dedicated bus lanes
- Closed bus stations with wide doors enabling level boarding/ alighting Facility with the bus floor
- Specially designed fleet of buses with a distinct and unique identity (Wider doors in the centre)
- Passenger Information System (PIS)
- Vehicle Tracking System (VTMS)
- Automatic Fare Collection System/Off-board Ticketing
- Commuter friendly transfer stations, Terminals and Depots
- Unique Branding and Identity

**6. Why is a dedicated lane for buses required in BRTS?**

Dedicated lane is an essential element of BRT systems around the world. It helps to make the service more efficient because:

- BRT buses are separated from other traffic and so they can move faster
- Public transport service can get priority over other vehicles
- Driver fatigue is reduced by avoiding conflicts with other vehicles, which are commonly observed in mixed traffic conditions

**7. Why are dedicated lanes for buses and BRT stations located in the centre of the road?**

Dedicated lanes are generally planned in the middle of the road with a view to reduce conflicts with turning vehicles at intersections and accesses to property entrances. For these reasons, BRT lanes and BRT stations in most cities across the world are located in the centre of the road.

**8. How does one safely access the station in the middle of the road?**

- Most BRT stations are located near intersections having traffic signals so that passengers can cross at the pedestrian phase
- Crossings are at-grade (level), which provides the simplest and most convenient form of crossing a road for people of all ages as against foot over-bridges or underpasses.
- Speed breakers before crossings, adequate lighting at crossings, and pedestrian refuge islands would provide safe access to the stations
- Additional pedestrian signals will be installed at locations with high traffic volumes and speeds

**9. Will passengers be more inconvenienced by having to walk longer and having to cross the road to access the median station?**

It is a misconception that by having the BRT station in the middle of the road a passenger has to walk longer distance. In normal bus systems a passenger still has to cross the full width of the road twice in a day at one stretch (onward or return journey). BRT stations located in the middle of the road enable crossing half the road for each journey.

**10. What is the advantage of common median station (e.g. Ahmedabad/ Indore) over staggered median station (e.g. stations originally installed at Pune Satara Rd / Delhi HCBS)?**

- A common median station enables ease of transfer between BRT routes without exiting the station
- The cost of building a common median station is nearly 35 % lower than staggered median stations (One station instead of two)
- Station length would be shorter and the width is more effectively utilized
- Operations & Maintenance cost of common median stations would be nearly 40% lower than staggered stations because of reduced requirements of manpower, lighting, Intelligent Transportation System (ITS) equipment, ticketing booths etc.

- Since common median stations are located at the right most lane, buses can stop properly aligned against the station since they are more visible to the driver



*Common Median Station*



*Staggered Median Station*

**11. What are the advantages of wide automatic doors on the buses and stations and level boarding facility?**

Wide automatic doors on the buses and stations allow for faster passenger movement similar to metro rail systems. Level boarding (with bus floor matching bus station platform) reduces boarding and alighting time per passenger. Therefore bus stopping time (dwell time) at bus stations is significantly reduced and which contributes to the rapidity of the BRT. With the help of step-less entries and exits, boarding on a BRT bus is 10 times faster than boarding on a regular bus.



*Picture showing Wide Automatic Doors on the Buses and Stations matched to enable level boarding*

**12. Can the visually and physically challenged persons travel on BRTS bus?**

The following facilities to make bus travel disabled friendly are being made on the BRT corridors:

**For physically challenged**

- Ramps at Stations to ease access for the physically challenged
- Wheelchair docking provision inside the bus

**For visually impaired**

- Tactile flooring inside stations to aid the visually impaired
- Audio announcements inside the bus

**13. What will be the length of BRTS corridors in Pune-Pimpri Chinchwad?**

Six corridors are being developed in the current phase of the Rainbow BRTS network.

Corridor Name	Length (km)	Number of Stations	Region
Nagar Road	8	13	Pune
Sangamwadi - Vishrantwadi	8	9	Pune
Old Mumbai-Pune Road	12	36	Pimpri Chinchwad
Sanghvi Phata-Kiwale	14	21	Pimpri Chinchwad
Nashik Phata-Wakad	8	15	Pimpri Chinchwad
Kalewadi Phata-Dehu Alandi Road	11	20	Pimpri Chinchwad

**14. What will be the distance between consecutive BRT Stations on the corridors?**

The average distance between consecutive BRT stations is around 500 metres. Station locations are decided primarily based on the passenger demand and also taking into consideration the site feasibility for construction and distance between adjacent stops.



#### **15. What are the various safety features planned as part of BRTS?**

- Vehicle Safety Standard norms are followed for all the buses as per the Urban Bus Specifications developed by the Ministry of Urban Development.
- All merges in/out on the Old Mumbai-Pune Road (in Pimpri Chinchwad) will be properly redesigned to enable safe movement at lower speeds as per the recommendations of IIT Mumbai Safety Audit report.
- All major junctions will be signalized/ provided with traffic wardens
- Traffic Signs and Informatory Signage will be placed along the BRT corridors at all critical and necessary locations.
- Passenger access to BRT stations will be made safe by providing speed tables and speed breakers to ensure vehicle speeds are reduced as they approach the crossing.
- BRT Buses will dock only at the station door positions thus enabling safe boarding and alighting, similar to metro rail. The automatic doors on the bus station will open only after the bus has docked properly thus ensuring passenger safety.
- BRTS Stations interiors are well lighted providing visibility at all times of the day.
- Pedestrian crossings on the corridors will be well lit at night to enable for visibility to motorists.

#### **16. How are Junctions/ Intersections on BRT Corridors managed?**

- Depending upon the operations requirement, traffic signal operations will be designed to ensure rapidity of BRT buses.
- Traffic wardens will be hired to support traffic police in management of traffic and also to ensure that other vehicles do not enter BRT lanes.

#### **17. Is BRTS for Pune and Pimpri-Chinchwad different?**

Rainbow BRTS will be operated across Pune and Pimpri-Chinchwad by PMPML. The bus station design and some infrastructure as developed by the respective municipal corporations are different but the approach remains the same. The BRT corridors being constructed in Pune and Pimpri Chinchwad are currently physically disconnected, but will be connected in the future. The Pimpri Chinchwad BRT corridors and Pune BRT corridors are a part of the larger proposed Rainbow BRT network, which when complete, would be one of the largest BRT systems in Asia.

#### **18. Are PCMC BRT corridors linked to Pune BRT Corridors?**

Today the new BRT corridors being constructed in Pune and Pimpri Chinchwad are physically disconnected. The extensions of Pimpri Chinchwad BRT corridors into Pune are a part of the larger proposed BRT network and will be developed subsequently. The complete network which has been proposed by the two cities measures a length of 143 km. While the physical infrastructure is not integrated, routes are planned to connect corridors in both cities.

**19. Will there be any change in the existing bus routes because of Rainbow BRTS?**

Bus routes are being changed/ modified to make the overall bus operations more efficient and simpler for passengers to use and connect to the BRTS. A simple route network which is easy to understand and good frequency of buses are the primary features of the new service. Regular bus routes (non BRTS) will continue to ply to several destinations not along BRTS corridors.

**20. How can passengers reach the BRT corridors if routes are changed?**

Passengers using BRT will have the following options:

- Feeder bus routes or regular services run by PMPML from various locations in the city up to the BRT corridors
- Well-designed footpaths and cycle paths along the corridor for those who wish to walk or cycle to the bus stations
- Designated auto stands near BRT stations

**21. Where do I get information about Rainbow BRTS bus schedules and route etc.?**

Information about Rainbow BRTS bus schedules and routes etc. will be available on the PMPML website and on BRTS corridor stations once the service starts. Real time arrival of buses on each route will be displayed at the BRT stations once the Intelligent Transportation Management System has been implemented. An SMS-based system will also be developed in the future.

**22. Will BRTS travel ticket be costlier?**

The proposal for revision of bus ticket fares on BRTS routes is under consideration. Tickets may be bought at stations on the corridor or inside buses in other locations. Rechargeable Smart Card facility is also planned. Transfer tickets will be issued at terminals for passengers having to transfer between BRT and feeder route to reach their destination.

**23. Are BRTS buses air conditioned?**

The buses procured initially for BRT operations are not air conditioned. However, in future based on public demand, AC buses could be introduced.

**24. How is the project being funded?**

Both Pune and Pimpri Chinchwad BRT projects are being funded under the JnNURM program of the Government of India.

Additionally, PCMC BRT project is also supported by the Sustainable Urban Transport Program initiated by the Government of India in partnership with Global Environment Facility (GEF), The World Bank and United Nations Development Programme (UNDP).

**25. Why is BRT still being considered when it has not been beneficial in other cities in India such as Delhi, Jaipur etc.?**

Traffic congestion is inevitable and emissions from private vehicles will adversely impact the environment if alternatives are not implemented in quick time. BRTS is a long term sustainable transport solution than can be built at low cost and providing multiple benefits which is why nearly 160 world cities have built it. To create a significant positive impact, the network and reach of the system should also be extensive. Delhi High Capacity Bus System has only one corridor measuring a length of 5km which is too small a length to estimate impacts. The pilot corridors/systems in Delhi and Jaipur would meet mobility needs better by adopting the above mentioned features of BRT. The new systems in Pune and Pimpri Chinchwad are being planned with all the system features.

**26. Can BRTS provide the same level of service and comfort as Metro Rail?**

Yes. Features in BRT such as level boarding and alighting, passenger information system, vehicle tracking, automatic fare collection etc. are at par with those in a Metro Rail. BRT is a flexible system unlike Metro Rail. The time required to construct a BRT is much lower than that required for Metro Rail. Since a BRT can be built at much lower cost as compared to Metro, BRT can give greater service coverage at lower cost.

(Cost of building 6 km of Metro = 120 km of BRT = 360 km of High Quality Walking & Cycling Infrastructure).