

PRELIMINARY ASSESSMENT OF BUS RAPID TRANSIT SYSTEMS IN URBAN INDIA

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INTRODUCTION

- Bus Rapid Transit systems are being rapidly seen as effective systems of efficient Public Transportation in India.
- The concept has been derived from cities like Bogota and Curitiba, running successful BRT systems, connecting them to other **Non-Motorized modes like Walking and Bicycling**.
- They are also an important link for promoting Low Carbon Transport in India, as they have potential for increasing share of Public Transport usage and increase in Non-Motorized transport usage.
- Therefore it is important to see the status of some of the BRT Projects, in terms of infrastructure they have created and issues they have faced during implementation, and running the systems
- Central Govt. has promoted the concept by partly funding BRT Systems, under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM).
- Policies for BRT have been included in The National Urban Transport Policy.
- The study is an enquiry into the achievements of and bottlenecks in the expansion of BRT systems in Indian Cities.

WHY BRT?



- BRT prioritizes public transport and it is a need of an hour.
- Our empirical studies in major BRT cities show that almost everywhere the BRT (and corresponding infrastructure) carries just about the same or more people in peak hours as the private vehicles.
- From the equity perspective, the concept of BRT has many positives like giving priority to the public transit, creating infrastructure for walking-cycling, allocating space for street vendors and expanding the public realm.
- BRT projects have brought in the country positive air about prioritizing public transport and non-motorised transport against the conventional models of building flyovers and expanding the road widths.



“However, there can not be a singular 'successful' model of BRT.

Each city will have to evolve and adopt the concept of BRT (prioritized bus corridor with adequate walking-cycling paths) in many different ways.

The policies and funding should allow and encourage that. ”

CITIES COVERED

- The study has covered four cities both Metropolitan and Tier-II cities, where BRT systems of different type and form are functioning.
- The four cities taken for detailed enquiry into the BRT Systems are,

Metropolitan	Tier-I
Delhi	Ahmedabad
Pune	Jaipur

COMPARITIVE SUMMARY OF BRT SYSTEMS

Sr.no.	Component	Delhi	Pune	Ahmedabad	Jaipur
1.	Type of System	Open Corridor, side median bus stops	Open Corridor, side median bus stops	Exclusive Corridor central median bus stops	Open Corridor side median bus stops
2.	System Run by	DIMTS	PMPNL	Ahmedabad Janmarg Ltd.	JCTSL
3	BRT Lane Maintenance	NDMC	PMC	Ahmedabad Janmarg Ltd.	JDA + JMC
4	Work Commenced in	2006	2006	2007	2006
5	Work ended on	Ongoing	Ongoing	Ongoing	Ongoing
6	Total Cost (Rs. Lakhs.)	15300	10313.5	100000	21920
7	Kilometers (Planned)	310 (In 3 phases)	100.17	88.8	138 (39 Kms. Sanctioned)
8	Kilometers (Functioning)	5.8 (Pilot-I)	13.6	25.5	7.1

COMPARITIVE SUMMARY OF BRT SYSTEMS : FUNCTIONAL

S.no.	Component	Delhi	Pune	Ahmedabad	Jaipur
1.	Level Boarding	Available, Partially functional	Available, Non functional	Available, fully functional	Available, fully functional
2.	Ticketing	In Bus	In Bus	On Bus Stops	In Bus
3	Bicycle Tracks	Available at full length of operational corridor, fully functional	Available at full length of the corridor, partially functional	Available at some portion of the corridor, non functional	Non dedicated, road-marked space
4	Bicycle track Continuity	Continuous	Fairly Continuous	Discontinuous	-
5	Footpaths	Available at full length, operational	Available at full length,	Available at some portion of the corridor	Available at some portion of the corridor
6	Obstruction on NMT	No Obstruction	Obstructed by vendors, parking and SW storage	Obstructed by parking, vendors	-
7	Crossing Guard	Available	Not Available	Not Available	Not Available

BUS CORRIDOR

DELHI



PUNE



AHMEDABAD



JAIPUR



ISSUES OBSERVED ON BUS CORRIDOR

DELHI

- ❑ Large Bus Pile up on the corridor, due to signal cycle favouring the mixed traffic!
- ❑ Level boarding is not always possible, due to bus pile-up longer than bus stop length.
- ❑ Too small to make a mark.
- ❑ Signal time of just 10-15 seconds, for the buses to pass.
- ❑ Exemplary design of the pedestrian and cycling infrastructure, inclusion of street vendors.

PUNE

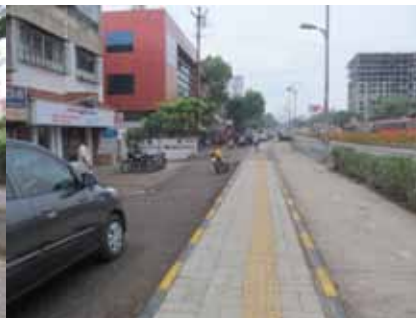
- ❑ No level boarding, due to mismatch in bus stop heights and bus design.
- ❑ No enforcement of the corridor, due to which other vehicles use it causing accidents.
- ❑ Corridor is discontinuous at many places.
- ❑ Fairly good cycling and walking infrastructure on the bus corridor.

NMT INFRASTRUCTURE

DELHI



PUNE



AHMEDABAD



JAIPUR



BRTS cycle-track discarded over space, security concerns

TIMES NEWS NETWORK

Ahmedabad: If you had plans for a morning bicycle ride along the BRTS stretch from Shivranjani to SG Highway, you will be disappointed. AMC has decided to do away with the cycle track on this stretch which is supposed to run alongside the BRTS track.

The reasons cited were non-availability of land and security issues since it next to ISRO' Space Applications Centre. The bus stops here also have deliberately planned far away from the high security zones. Officials said that one bus stand will be somewhere near Jodhpur crossroads and the next at Ramdevnagar crossroads.

The official also said that AMC was not willing to take any chances. "Anyone can stand at a BRTS bus station and take photographs and hence we wanted to be sure. Those who would be riding bicycles would have to do it very close to the boundary wall. This was also a security threat to the establishment."

Another reason was simply the lack of space. This area has among the highest densities of cars and two



The revised road boundary being marked out adjacent to the ISRO wall on the Jodhpur Ramdevnagar stretch

wheelers passing by. He said that AMC had asked for some land from ISRO, but since it was a Government of India organization, there was a delay in getting the land and there was also no positive reply also from the Government. Officials thought it best to do away the bicycle track.

UC Padia, deputy municipal commissioner said "We had demanded land from ISRO, but since ISRO is a Government of India establishment, there was a delay. Hence we decided to do away with the bicycle track and

have also taken a decision to narrow the pedestrian lane near the ISRO boundary to have more space for mixed traffic."

Another senior officer said other factors leading to the decision to do away with the track were a nearby school and temple, apart from parking by private luxury buses were major hindrances to traffic on the stretch. The school and the temple have visitors parking their vehicles right on the road, while the luxury buses also park on the main road at night.



NO FOOTPATH OR BICYCLE TRACKS ALONG SOME PATCHES OF BRT



BADLY CONSTRUCTED AND IMPLEMENTED

ISSUES OBSERVED IN NMT INFRASTRUCTURE

PUNE

- ❑ Obstructed due to Parking, Vending and Solid Waste Storage.
- ❑ Bicycle tracks, discontinuous at certain patches.
- ❑ No space for bicycle parking, Auto Rickshaw parking, vending along the corridor.

JAIPUR

- ❑ No dedicated Bicycle tracks
- ❑ Low Footpath widths of 1 m. At many junctions.
- ❑ Sign boards obstructing footpaths

AHMEDABAD

- ❑ Obstructed, discontinuous badly designed bicycle tracks with high curbs along, which are barriers
- ❑ Discontinuous footpaths
- ❑ Water logging, haphazard parking and vending.
- ❑ Mostly unused

Cycle Track and footpath on BRT Route: AHMEDABAD



Discontinuous cycle track visible

Legend

-  BRT_Stand
-  Footpath
-  Cycle_Track
-  BRT_Road

0 50 100 200 300 400
Meters

PLANNING ISSUES

- CMP has been prepared for Pune, Delhi and Jaipur, and not for Ahmedabad
- In Pune and Jaipur CMP has been made after the BRT.
- In Delhi, BRT Corridor is in accordance with the CMP.
- In Jaipur overlap of BRT Corridor with Metro Corridor because of the bias in favour of metro.
- CMPs are not in alignment with Master-plans.
- Planning processes are fragmented and no attempt to link land-use and transport plans. Example: Post BRT Discussion on increasing FSI in Ahmedabad.
- It is not necessary that FSI increase on BRT corridor under the idea of TOD (Transit Oriented Development) would bring in high BRT ridership - high FSI means high-end housing.

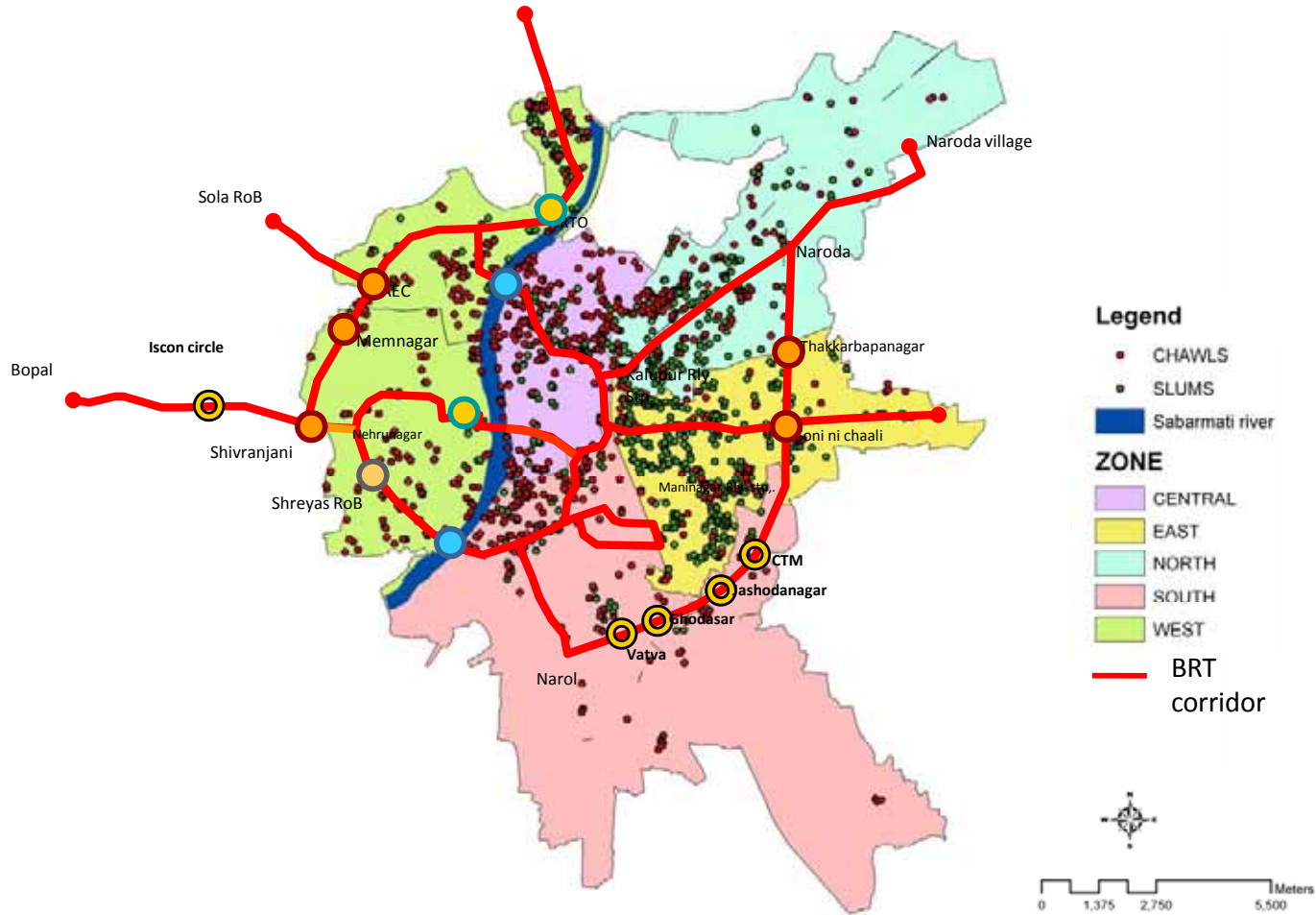
Inclusive Planning & transport



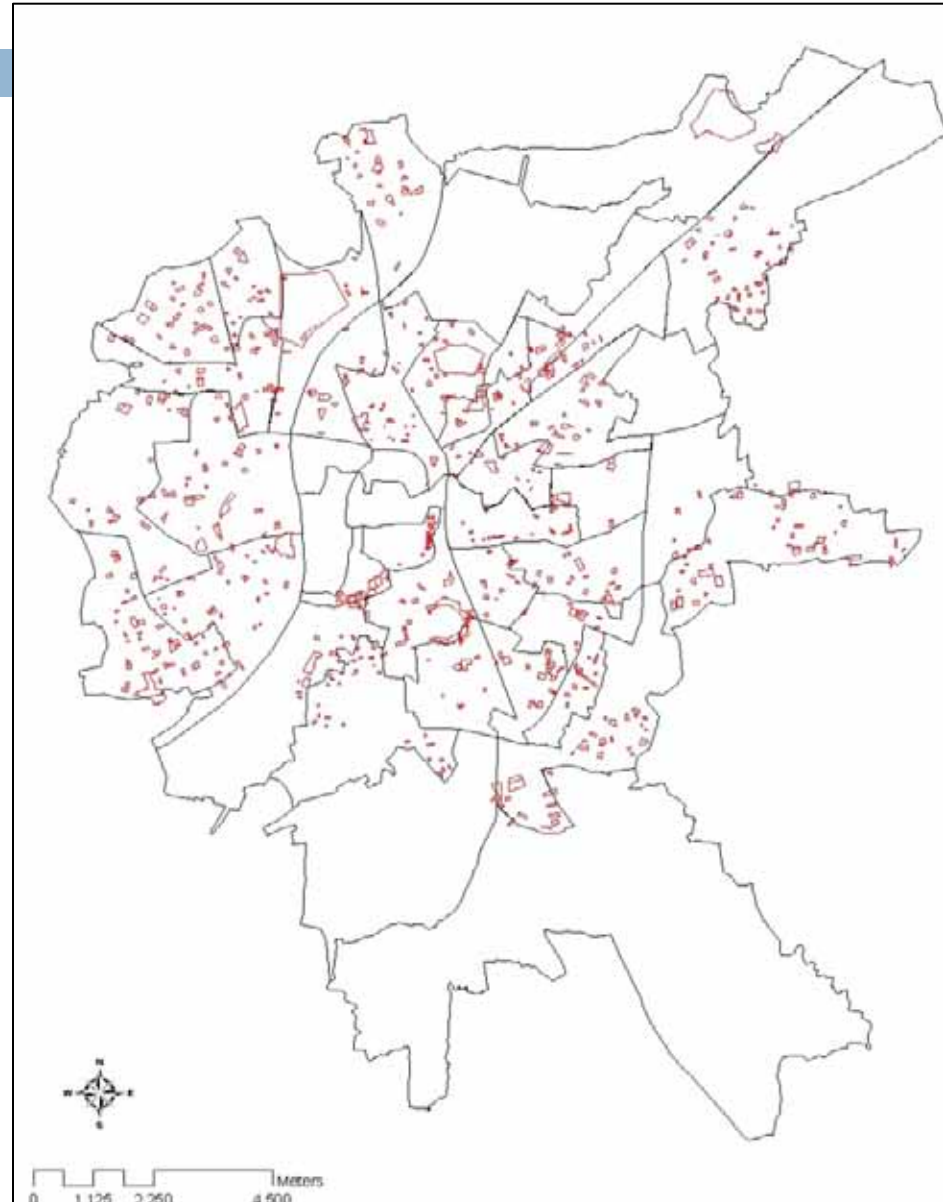
- Today's approach to transport planning, including CMP preparation is within a development paradigm based on interests in land speculation
- Inclusiveness requires a land use paradigm change
- Most important is change to approach in land
- Land speculation and deregulation leads to sprawl
- Need to link shelter policy with transport policy or inclusive shelter policy would ease mobility and accessibility questions

Urban Poor settlements and BRTS

Ahmedabad – Location of Slums and chawls

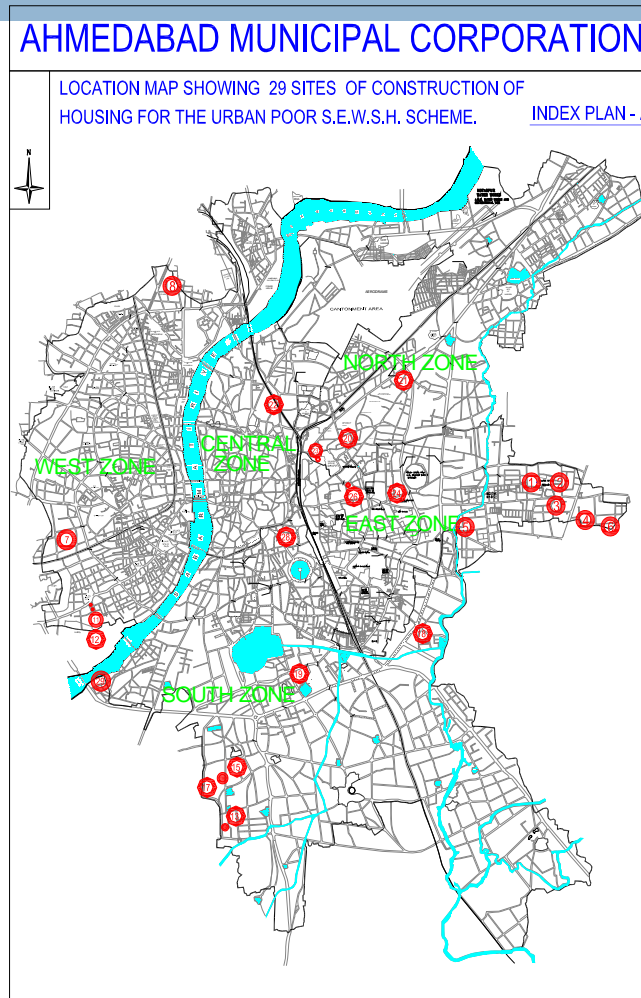


Public lands for low income housing



LOCATION MAP SHOWING VARIOUS

RESETTLEMENT SITES



BOTTLENECKS

- ❑ Indian urban elites do not want to share urban resources with poor including road space. Hence it take long time for the cities to get convinced on systems like appropriate BRT Model. (e.g resistance to Delhi BRT and selection of the most convenient corridor in Ahmedabad as a pilot.)
- ❑ BRT Implementation difficult in dense and old settlements of city, where road widths are already too narrow.
- ❑ In such situation need to reconsider allowing private vehicles on BRT corridors, in essence a call on transport paradigm needs to be taken.
- ❑ Inclusion of NMT Infrastructure into BRT Corridor, *“Constructing roads from the sides, rather from the centre.”*
- ❑ Connecting BRT systems with other modes of transport, primarily Walking and Cycling, Auto Rickshaws and Public bus systems.
- ❑ Inclusion of Vending Activities, along with NMT Infrastructure
- ❑ Enforcement issues, specifically in terms of Parking in the sides.
- ❑ Governance bottlenecks, in terms of institutional mechanisms for integrating different transport systems.
- ❑ Affordability- Very low Affordability and hence pricing to be more inclusive.

SUGGESTIONS

- BRT systems not to be treated as an exclusive system as in case of Delhi, Jaipur and Pune. It would be most appropriate to enhance the mobility of majority than providing express access for few. No single transport system can solve needs of different social groups.
- Need to integrate existing systems with the new systems in terms of physical access, ticketing and governance mechanisms.
- Adapting BRT in different ways in Indian cities, rather than one defined prototype.
- BRT to be developed, with carefully designed NMT Infrastructure.
- The poor are the most dedicated and captive bus commuters in big cities. Is it possible for make the BRT more accessible to the poor by cutting down the ticket cost? The cost of BRT tickets can exclude people and discourage the use of it.
- Allocating design spaces for vendors
- Bus stop design for different type of buses, in an open system, creating a possibility of integrating vending with bus stops.
- Designing emphasis on pedestrian access to BRT stations.