

Transport Department

4.8 Bus Rapid Transport Corridor (BRTC) Project

Transport Department went ahead with the construction of BRTC ignoring the advice of large number of agencies on design of the Project as a result of which the concept got unpopular because of the traffic congestion it brought about.

Government of National Capital Territory of Delhi (GNCTD) had identified High Capacity Bus System (HCBS) as the appropriate Road-based Public Transport System for Delhi. High Capacity Bus Systems were to run on a dedicated lane, which was to be carved out of the existing road network in Delhi. These dedicated lanes are referred to as the Bus Rapid Transport Corridor (BRTC).

Government of Delhi in January 2003 entrusted a study to be carried out by the M/s RITES in association with IIT Delhi to identify High Density Traffic Corridors. The study identified seven corridors⁶ and the Government of NCT of Delhi decided to take up the work of Ambedkar Nagar-ISBT corridor (19 km) in the first phase. The work awarded to a contractor in September 2006 and the work was started on 4th October 2006. We carried out an audit of this corridor and our audit brought out the following issues:

⁵ Quality improvement programme.

⁶ Nangloi to Shivaji Terminal, Azad Pur to Nehru Place, Jahangir Puri to Old Delhi Railway Station, Ambedkar Nagar to ISBT, Kashmere Gate, Anand Vihar to Shivaji Terminal, Hari Nagar to Central Secretariat, Badarpur to Pragati Maidan.

4.8.1 Creation of an exclusive bus lane shrunk road size and created congestion

As mentioned earlier the corridor was to be carved out from the existing road network. As per the design there would be two central bus lanes each of 3.3m width, one for each direction of travel and separated by a dividing strip of 0.6-1.1m width, replacing the existing median. These are abutted by two lanes for other motorized vehicles (MV) of a minimum of 6.75 meter width for each direction of travel. Segregated non-motorized vehicle (NMV) lanes of 2.5m width and footpaths of 1.2m width have been provided for each side along with the entire corridor and service road wherever space was available.

It would be seen that BRT corridor would make the existing road much smaller for all kinds of vehicles other than buses. No study was carried out regarding the congestion problem that such restricted space would entail. In fact the Planning Department as well as the Delhi Traffic Police had raised their concern on this issue while the proposal was being considered. The Planning Department had recorded their views as under while the proposal came up during the 6th meeting of the Expenditure Finance Committee (EFC) held on 13th August 2004:

(a) The net availability of road space will get reduced after taking away the road space from the existing road space for constructing specific corridor for HCBS. In Delhi in most of the major roads, there are 3 lanes for up journey and 3 lanes for down journey separated by a central verge, sometime of adequate width but mostly by a road divider of very smaller width. It is obvious that if one has to leave space for constructing specific corridor for HCBS at the central verge of the road then the availability of road space for other vehicles will get reduced. As result instead of 3 lane road, it will become practically 2 lane or 1 & ½ lane road which would be ultimately left available for the existing vehicles that is other than HCBS.

(b) It is understood that one of the basic aim of the HCBS is to attract private vehicle owner to shift to HCBS. Whether there has been any study for such is not known.

The Delhi Police had also raised their concern in a note sent to the Transport Commissioner during February 2006. The note interalia stated:

(i) We have carefully examined the proposal of Transportation Research and Injury Prevention Programme (TRIPP) regarding introduction of High Capacity Bus System on corridor from Ambedkar Nagar to Delhi Gate. The system totally changes the concept/practice of existing movement of vehicles in Delhi. It appears that TRIPP has only designed the infrastructure requirements for introducing the system without addressing the management

issues and problems that would arise after its implementation and some of those can be anticipated even today in view of the field experience. Unless a massive change is brought about in the behaviour of all types of road users, this scheme would create many management issues. These problems/management issues have been brought to the notice of Transport Department, Govt. of N.C.T. of Delhi, but have not been given due consideration and have been given only theoretical treatment. Some of the apprehension and anticipated problems of traffic management are listed here again to be addressed before the implementation of the scheme. This scheme has been conceived and prepared by a group of Experts from I.I.T. We have a set of Transport planners in the city like C.R.R.I, School of Planning and Architecture and other private Consultants. It would be worth consideration if this scheme is also evaluated by an independent group of Transport Planners.

(ii) 1/3rd of the present ROW will be given to buses, which comprise only about 2.5% of the modal share, whereas the remaining motorized traffic will be squeezed into a ROW of approx 6.5 metres (less than two lanes), which is bound to increase the congestion and other related problems on the roads.

(iii) IIT Delhi has proposed signal cycle plan of 180 seconds for major intersections. According to field experience, the signal cycle plan would not be able to handle the traffic volume and discharge it at various intersections in the corridors. The role of traffic signal would be of the utmost importance for fast clearance of traffic at the intersection.

(iv) Free 'U' turns facilities under all the flyovers now available will have to be stopped thereby causing problem to the enhanced traffic accessing other side of the road.

(v) The HCBS scheme should be got vetted through traffic and transportation and Management experts from institutions like Central Road Research Institute, New Delhi, School of Planning and Architecture or other reputed traffic engineering/management consultants of India or abroad, keeping in view the existing traffic scenario, road user behaviour, heterogeneity of traffic and other key factors. Any scheme of the magnitude of BRT corridor (HCBS scheme of Delhi) should have total solutions to all the issues pertaining to the design and management and likely future impact on traffic and transportation scenario of the city.

Government went ahead with the construction of corridor without addressing such concerns. When the first stretch of BRT was opened on 20th April 2008, it resulted in severe traffic congestion which continues till today on account of such concerns not having been addressed.



(Congestion in MV lanes of BRT Corridor)

4.8.2 Corridors made in concrete changed mid way as it was expensive

The work of construction of BRTC from Ambedkar Nagar to Delhi Gate was awarded by M/s RITES in September 2006. The design approved for the corridor envisaged construction of bus lane, MV lane and NMV lane and footpath in concrete pavement. The concrete road was preferred for better strength, longer life and less periodic maintenance. When the proposal came up for consideration in the 12th meeting of the EFC held on 28th December 2005, the Chief Engineer PWD had stated 'that the scheme of RITES envisages construction of cement concrete pavement. In other countries like Indonesia and China, rigid pavements have not been provided. Cities like Jakarta, Beijing as well as Kunming, the HCBS corridor system were using the existing lanes. Only one lane has been segregated by providing a detachable railing. It is therefore felt that in Delhi also we should go for existing flexible pavements for High Capacity Bus Corridors. This would not only reduce the cost of the project but would save great inconvenience to the road users during the period of construction'. Despite such strong reservations from the PWD department, Government went ahead with cement concrete construction. However, it will not be out of place to mention that as per the information furnished by Transport Department (December 2008), the expenditure on laying of C.C. pavement in Bus and MV lanes was Rs. 2320/- per sq. meter and the same was Rs. 1608/- per sq meter in Bituminous pavement. The department incurred an excess expenditure of Rs. 4.29 crore on construction of bus and M.V. lane of 110815 sq. meters in concrete from Ambedkar Nagar to Chirag Delhi.

As mentioned earlier, BRT corridor is a dedicated lane carved out of an existing road which has bituminous surface. Thus adoption of concrete surface for the BRT would result in same stretch of road having two different pavement structures part of it concrete while the remaining part is bituminous. Half way through the construction, the agencies realized (July 2007) that there was difficulty in going ahead with a concrete surfacing as the deployment of heavy mechanical pavers were posing serious problems and the cost on account of concrete was working out much higher than the estimates. The matter was placed before the Cabinet and its approval obtained (July 2007) for switch over to Bituminous surfacing of MV lanes and bus lanes beyond Chirag Delhi and cycle track & footpath only will be in concrete. There was no recorded justification for retaining cycle track and footpath across the entire length of corridor in concrete pavement against the bituminous surfacing which was cost effective.

It would thus be seen that there was no consistency in the bus design parameters of this project. Government invested heavily in creating concrete structures for the BRT corridor, which was later on abandoned after construction of only three Kms.

4.8.3 Work assigned to Transport Department who had no expertise

As per allocation of business, road maintenance and construction of roads are the responsibility of the Public Works Department. The BRT corridor is a dedicated lane within the existing road network, its construction and maintenance should have legitimately been allocated to the PWD. It is, however, seen that the entire work of design construction and supervision was entrusted to the Transport Department which had no technical expertise or experience in taking up this kind of work. The Transport Department in the Cabinet note dated 04.07.2006 stated 'the primary responsibility for implementation and coordination of HCBS project has been entrusted to the Transport department, which has limited experience and expertise in dealing with engineering matters as it did not have manpower and skill to undertake such tasks.' Cabinet approval was obtained for assigning the entire work relating to implementation of the BRT corridor by DIMTS on payment of consultancy fee of Rs. 1.50 crore, out of which a sum of Rs. 44.97 lakh had been paid as of June 2008 for monitoring/supervision of the BRT corridor. This was indeed a unique project with two sets of Consultants M/S RITES who were the project management Consultant and DIMTS who were the supervision consultants. Rupees 6 crore were to be paid to RITES and Rs 1.5 crore were to be paid to DIMTS. It transpired from the agreements entered into between Government of NCT of Delhi and the consultants (RITES & DIMTS) that functions assigned to the consultants were overlapping. The DIMTS shall with regard to the project (1) provide project conceptualization, design, facilitation, advisory and bid management services (2) provide

project development and management service and (3) provide management services for Government owned assets. The functions at (1) and (2) above were already covered under the functions assigned to RITES (Details in **Appendix-4.2**) and the question of providing service as mentioned at (3) above would arise only after construction of corridor.

There is nothing on record as to why the work was not entrusted to PWD, which had the necessary expertise to carry out such work. In fact, non association of the PWD in the construction of the BRT corridor on an asset, which is otherwise owned by the PWD, would pose serious maintenance problems in the future.

4.8.4 Alignment of the corridor changed from right side to left side mid way

The BRT was designed to be on the right side of the road with Bus Queue Shelters in the Central media. While reviewing the estimates the Chief Engineer PWD had expressed his concern regarding the provision of Bus shelters in the Centre which is before road intersections, facility for pedestrian crossing. The Delhi Traffic Police had also raised similar concern since passengers who leave the buses will have to cross the entire width of the road before they can go to the footpath meant for pedestrian. As F.O.Bs (Foot Over Bridges) had not been planned, the passengers will be conflicting with motorized vehicles and non-motorized vehicles, thus causing serious traffic problems and increase the red light duration for other motorized vehicles at an already congested MV corridor.

Such legitimate concerns were brushed under the carpet and the project went ahead with the BRT corridor being on the right side of the road with bus shelters in the centre median. During trial runs in April 2008, there was huge traffic jam on account of such design as a result of which in a review meeting held on 6th May 2008 under the Chairmanship of Chief Secretary, Government of NCT of Delhi, it was decided that the bus lane henceforth will be from the left side of the road beyond Defence Colony.

Thus the road design providing two central dedicated bus lanes for each direction of travel and separated by 0.3m Kerb stone from other lanes was ab-initio wrong which surfaced during trial run and eventually led to change in design locating the bus lane on the left side of the road. Even the present design is not free from infirmities as the same route will now have three forms of design-mixed traffic, bus lanes on the central verge and finally bus lanes along the left lane. This shows serious deficiencies in Planning and design.

It would thus be seen that there were large number of agencies, which had cautioned the Government about the dangers of going ahead with a project

without sufficiently investigating certain areas and issues, which had been identified. Government in its hurry to implement this project brushed aside such concerns as a result of which a sound concept got unpopular because of the traffic congestion it brought about.

4.8.5 Rs. 45.33 crore withdrawn in the year 2004-05 to avoid lapse of budget

During the test check of records for construction of above HCBS corridor, it has been observed that an amount of Rs. 45.33 crore approved in the Expenditure Finance Committee (EFC) in its meeting dated 15 February 2005 was withdrawn by the Transport Department in the financial year 2004-05 and kept in fixed deposit. The amount of Rs. 45.33 crore was released to concerned agencies between August, 2006 to January, 2007 (Rs. 15 crore to RITES and Rs. 30.33 crore to DIMTS). Thus, the amount was withdrawn in the year 2004-05 to avoid lapse of budget.

4.8.6 Undue benefit to RITES and DIMTS (NG)

Clause 5 of the agreement executed between Transport Department and M/s RITES Ltd. stipulates that the Government or its authorized agency DIMTS shall accord sanctions and replenish revolving fund timely so that the work progress is not hampered. Accordingly, Rs. 30 crore as revolving fund was sanctioned (October, 2006) and payment was made to RITES in November 2006. There is no enabling provision in General Financial Rules to empower State Government to advance crore of Rupees to a Public Sector Undertaking for maintaining a revolving fund, thus keeping large funds out of Consolidated Fund.

Further, amounts (details in **Appendix-4.3**) were released to DIMTS for further release to RITES for replenishment of revolving fund.

Out of Rs. 100.33 crore released to DIMTS during October 2006 to October 2007, DIMTS released only Rs. 48.00 crore during August 2007 to May 2008. Funds ranging from 10.00 crore to 90.33 crore were lying with DIMTS for the period ranging from 7 days to 7 months 2 days in excess of the requirement. Even if the DIMTS had kept the spare funds in saving account it could have earned interest of Rs. 2.32 crore. GNCTD should take measures to recover the interest amount from DIMTS. Release of funds in excess of requirements tantamount to undue financial assistance to DIMTS.

4.8.7 Conclusion

- Transport Department ignored the concerns expressed by stake holding agencies on design and went ahead with the construction of BRTC

creating exclusive bus lane, which shrunk road size and created congestion for other motorized vehicles.

- The Department preferred Cement Concrete pavement instead of bituminous and incurred excess expenditure of Rs. 4.29 crore on carving a 3.00 Km. stretch of Bus and MV lanes from Ambedkar Nagar to Chirag Delhi.
- Transport Department engaged two consultants namely RITES and DIMTS whose functions were overlapping.
- Due to severe traffic congestion in MV lanes during trial runs on first stretch of BRTC, the design of the corridor was changed midway and bus lanes were shifted on left side of the corridor. Even the present design is not free from infirmities, as the same route will now have three forms of traffic design.
- Due to weak financial management funds were released to consultants in excess of requirements.