

## **Compilation of BRT Studies by different agencies**

The Bus Rapid Transit System (BRTS) in Delhi offers an alternative model of transportation providing separate spaces for buses, private motorised vehicles, cyclists, pedestrians and livelihood opportunities. Focussing more on the movement of people rather than of vehicles, giving due right of way for non-motorised modes of transportation, this model promised sustainability of both the transportation system as well as the environment. However, since its launch in 2008, it has faced strong opposition from the car lobby which found its space limited to two lanes on the corridor while the buses sped by on the bus lane; this system also faced severe criticism in sections of the media supporting car owners. While the reporting was negatively biased towards the corridor, its benefits for the larger population and the overall transportation system were not given much importance.

The recent move of the High Court questioning the feasibility of the bus corridor and the subsequent commissioning of Central Road Research Institute (CRRI) to study the corridor is based on a petition by a Delhi-based NGO, purporting to represent auto-rickshaws, contending that the “traffic in the non-bus lane was moving at a snail's pace” and demanding that the ‘empty’ bus lanes be opened up to all other motorized vehicles. Such an approach does not question the role of cars in creating congestion and whether their removal from the roads would not make things much better. While the study of the BRT corridor by CRRI is to be welcomed to assess whether the BRT has achieved its original objective of making travel easier for the average commuter (only 12% use private motorised vehicles), it is important to revisit the existing findings of research conducted by various independent agencies who have studied the corridor from various perspectives. Some of the studies regarding BRT in Delhi are presented below:

### **Centre for Science and Environment (2008 & 2009)**

A study was conducted by CSE in collaboration with Delhi Greens and IYCN in 2008. 1500 respondents were involved in the study. Of these, 55% were bus commuters, 23% were cyclists/pedestrians, 16% were car and two wheeler users and the rest consisted of a mixed group using autos. Major findings were:

- 83% of the respondents were happy with the BRT system and wanted it to be continued.
- 88-91% of the bus commuters, cyclists and pedestrians supported it and wanted it to be extended to other areas of the city.
- Only 8% of car and two-wheeler users said that BRT should be stopped. 73% of this group supported the corridor.
- 23% of car and two wheeler users said that they were willing to leave personal vehicles and shift to buses if the bus facilities were improved.
- 60% of the commuters on the corridor were using buses. Cars were carrying less than 20% of the people.
- Data at the key junctions of the corridor showed that around 200 buses were carrying approximately 15,000 passengers during the morning rush hour. On the other hand 5,000 cars were carrying 5,767 passengers while 4,000 two wheelers were carrying 4,000 persons in the same time.

Another evaluation of the corridor was carried out by Dr. D. Hidalgo and M. Pai with support from CSE in February, 2009.

- Number of vehicles and occupancies were calculated after the implementation of BRT corridor. 3,675 motor vehicles per hour were carrying 3,841 people (1.045 persons per vehicle) and 112 buses per hour were carrying 6,371 passengers (57 passengers per vehicle). Volume of traffic and people moved was the same without the corridor but with the corridor the speed had changed (from 16 km/h to 14 km/hr for motor vehicles and from 12 km/hr to 18 km/hr for buses). Since most of the users in the corridor were bus users, the decrease in travel time for bus users offset the increased travel time for cars.

### **EMBARQ (2009)**

This study was conducted for the 5.6 km stretch of BRT corridor which was started on a pilot basis. The study of this corridor clearly showed that:

- 88% of bus commuters, 85% of pedestrians and cyclists, and nearly 50% car and two wheeler users were satisfied with the BRT system. For the first time, pedestrians and cyclists were given high quality space.
- The usage of the cycle lane was quite high and recorded nearly 1300 cyclists every hour in the peak hours. They constituted 11% of the total number of users on the corridor, while occupying very little space.
- Average travel time for motorised travel along the bus corridor decreased from 27 minutes to 22 minutes.
- Average speed of buses increased from 12 Km per hour to 18 Km per hour. Hence the travel time decreased by 35%.
- Regarding the fatalities, it was reported that there was no statistical difference between the number of current fatalities on the corridor and before its implementation. There was also a gradual decrease in the number of fatalities since the implementation of the corridor.

### **Hazards Centre (2009)**

User surveys were conducted by Hazards Centre in 2009 with the help of volunteers/student interns from IIT, Delhi and University of Delhi along the corridor to assess the user satisfaction. A sample of 500 was taken for each study, which consisted of a commuter ratio of 60% bus commuters, 30% motor vehicle owners, and 10% cyclists. The respondents were mainly business owners, students, shopkeepers, servicemen, and daily wage workers.

- 66% of the bus commuters and 77% of the motor-vehicle users responded that they travelled frequently through the corridor
- 88% of the bus commuters agreed that travel through BRT corridor consumed less time while only 32% of personal motor vehicle users agreed to this view.
- 85% of bus commuters and 27% of personal motor vehicle users were of the view that BRT is successful in promoting public transport.
- 90% bus commuters and 23% of motor vehicle users approved of BRT system being implemented in other areas of Delhi as well.
- 49% bus users and 13% of motor vehicle users thought that BRT was useful in developing traffic sense in the people of Delhi.

Another study that was carried out at Chirag Dilli by the volunteers brought to light similar results:

- 70% bus commuters, 82% motor-vehicle users, and 50% of pedestrians and cyclists were frequent travellers on the BRT corridor.
- The BRT system was supported as being beneficial by 89% bus commuters, 58% cyclists and pedestrians and 18% motor-vehicle users.
- 89% bus commuters, 45% pedestrians and cyclists, and 25% motor-vehicle users agreed that the BRT system was a comfortable one.
- 85% bus commuters, 10% motor-vehicle users and 44% pedestrians and cyclists were of the opinion that BRT has eased the traffic flow
- 40% bus users, 20% motor-vehicle users, and 29% pedestrians and cyclists felt that bus corridor in the middle of the roads was a better option than on the left side.
- 89% bus commuters, 45% pedestrians and cyclists, and 25% of motor-vehicle users were of the opinion that this system should be continued
- 60% of the shopkeepers near the corridor reported that the number of customers has increased after implementation of BRTS.
- 69% of the respondents did not agree that BRTS has been helpful in reducing the pollution level.
- 85% shopkeepers and 80% residents did not agree that the rules related to BRTS are being obeyed by the commuters.
- 47% shopkeepers and 40% residents responded that BRTS has caused too much congestion on the roads.

A similar study near Ambedkar Nagar gave the following results:

- The commuter group using buses consisted of 65% employed in services, 10% students, and 25% business owners.
- 86% of bus commuters, 23% of motor-vehicle users, and 47% of pedestrians and cyclists supported the BRT corridor as being comfortable.
- 82% bus commuters, 46% pedestrians and cyclists, and 21% motor-vehicle users agreed that BRT has eased the flow of traffic.
- 46% bus users, 18% motor-vehicle users, and 33% pedestrians and cyclists said that middle lane for bus was better than left lane.
- 88% bus users, 47% pedestrians and cyclists, and 28% motor-vehicle users responded that the corridor was beneficial.
- 92% bus commuters, 26% motor vehicle users, and 55% cyclists and pedestrians wanted the system to be continued.
- 68% of the respondents did not agree that BRTS has helped in decreasing the level of pollution.
- 78% of the shopkeepers were of the view that BRT has helped in increasing the number of customers.
- Only 21% shopkeepers and 24% residents believed that the rules laid down by the government were being obeyed.
- 24% shopkeepers and 58% residents say that BRT has led to congestion.

### **Delhi Integrated Multi-modal Transport System**

- According to surveys by DIMTS, more than 1.35 lakh vehicles crossed Chirag Dilli junction per day which was found to be the busiest junction.
- Overall, 12,000 passengers were reported to be travelling through the corridor per hour.

- It was reported that cars, two wheelers, and auto rickshaws comprised 90% of the vehicles on the roads but they carried only 15-20% of the total commuters. On the other hand, buses constituted merely 2.0-2.5% of total vehicles on the corridor but were serving the needs of 55-60% of the commuters.
- It was observed that net throughput of all kinds of vehicles had improved. Bus and cycle transit time had reduced.
- Bicycle flow at peak hour time was recorded to be 1200 per hour, highest in the world after China.
- It was also recorded that more than 60% of the commuters were using the corridor for work.
- Of all the mass transit modes (Metro, elevated train, light rail, BRT), BRT has the shortest implementation time (1.5 years) and least investment (\$2-3 million) per km.
- Commercial speed of goods in the corridor was recorded as 16-19 km per hour. This was an improvement of 128% from the previous speed of 7-15 km per hour which was before the corridor was constructed.

### **Times of India (2008)**

- Between February 16 to June 6, 2008 the Times of India published 115 news reports and articles, of which 107 indicated a negative view of BRT, calling it, inter alia, a “killer”, a “mess”, “flawed”, “a nightmare”, “a fiasco”, “chaos” and so on. Only 3 were favourable and 5 were neutral.
- Many of the news reports referred to “popular anger”, “popular opinion”, “popular dismay”, “popular opposition”, “public anger”, “public rage” and “public flak” against the BRT.
- However, the definition of ‘citizens’ or ‘public’ as contained in the news stories themselves revolved around ‘motorists’, (car) ‘drivers’, (private) ‘vehicles’, ‘commuters’ (driving private vehicles), ‘road users’ (mostly motorized), ‘cars’, ‘scooterists’, ‘residents’ (of South Delhi and largely car owners), ‘four-wheelers’, and ‘motorcyclists’.
- Of the 52 interviews cited in these news stories, 30 were of motorists, 7 of school principals, and 5 of marshals. The views of only 4 bus commuters and 1 cyclist were reported and none of pedestrians.
- A systematic count in a photograph of the BRT corridor published on April 25 (when the trial runs were going on) showed that, on the same distance of the corridor, there were 59 cars, 86 two wheelers (of whom 28 were in the cycle path), 35 three-wheelers, 3 buses, and as many as 44 cyclists and 23 pedestrians. It is pertinent to note here that, if the buses were carrying anything near their normal capacity, they would be carrying more ‘commuters’ than all the other motorized vehicles put together.

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