

Annexure 16.1

Assumptions made in carrying out Economic Analysis

Various assumptions have been made, while assessing the economic benefits to the society on account of various factors after introduction of Metro system. These assumptions for each of the factors have been shown in the following paragraphs.

Assumption for modal characteristics

Mode	Average speed (Km.)		Daily vehicle utilisation (Km.)	Occu-pancy/ Vehicle	Trips / Day	Vehicles in the Influence area of
	Without METRO	With METRO Option I				
Bus	11	20	210	56	16	30%
Car	20	35	30	2	2	30%
2 wheeler	20	35	25	1.50	2	30%
3 wheeler	17	25	100	1.80	5	30%

Mode	VOC/ Km. (Rs.)	VOC/hour (Rs.)	Value of Time (Passenger)/ Hour (Rs.)
Bus	21.31	318	10.40
Car	6.79	123	13.81
2 Wheeler	1.61	29	13.81
3 Wheeler	5.49	99	13.81
METRO	-	-	10.40

Assumptions for fuel consumption & emission

Mode	Fuel consumption (Litre/Km.)	Reduction in fuel consumption due to decongestion effect (Lt./Km.)	Pollution Emission (Kg./1000 Litres)
Bus	0.279	0.0682	96.5
Car	0.077	0.0287	447.6
2 Wheelers	0.029	0.0096	447.6
3 Wheelers	-	0.0192	447.6

- Damage cost of Pollution Rs. 32/- per Kg.
- Price of Fuel
 - Petrol Rs. 34/- per litre
 - Diesel Rs. 22/- per litre

Assumptions for Bus characteristics

- Fleet Utilisation 90%
- Load Factor 90% (without METRO)
85% (with METRO)
- Carrying Capacity 56 passengers
- Daily Utilisation 210 km.

Assumptions for road accidents

- Reduction in Fatal Accidents = $40.01 * \text{Reduction in Vehicles due To Metro} / 100000 + 867.54$
- Reduction in Injury Accidents = $174.75 * \text{Reduction in Vehicles Due to METRO} / 100,000 + 4061.8$
- Cost of a Fatal Accident = Rs. 498,340
- Cost of an Injury Accident = Rs. 73,233
- Reduction in no. of Accidents causing damage to Vehicles = $310.92 * (\text{Reduction in vehicles due to METRO}) / 100,000 + 949.12$
- Share of Involvement of vehicles in accidents

Car	24%
Bus	28%
Truck	29%
2 wheeler	19%
- Cost of damage to Vehicles due to an Accident.

Car	Rs. 11,124
Bus	Rs. 37,395
2 Wheelers	Rs. 2604