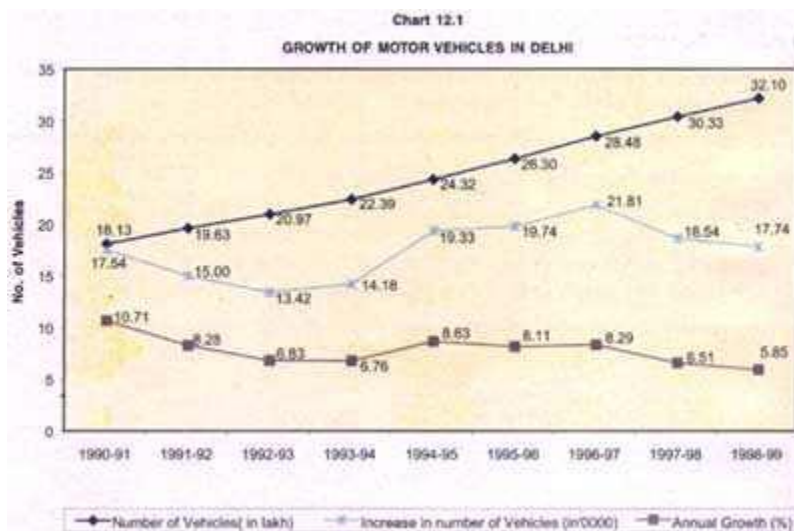


CHAPTER 12

TRANSPORT

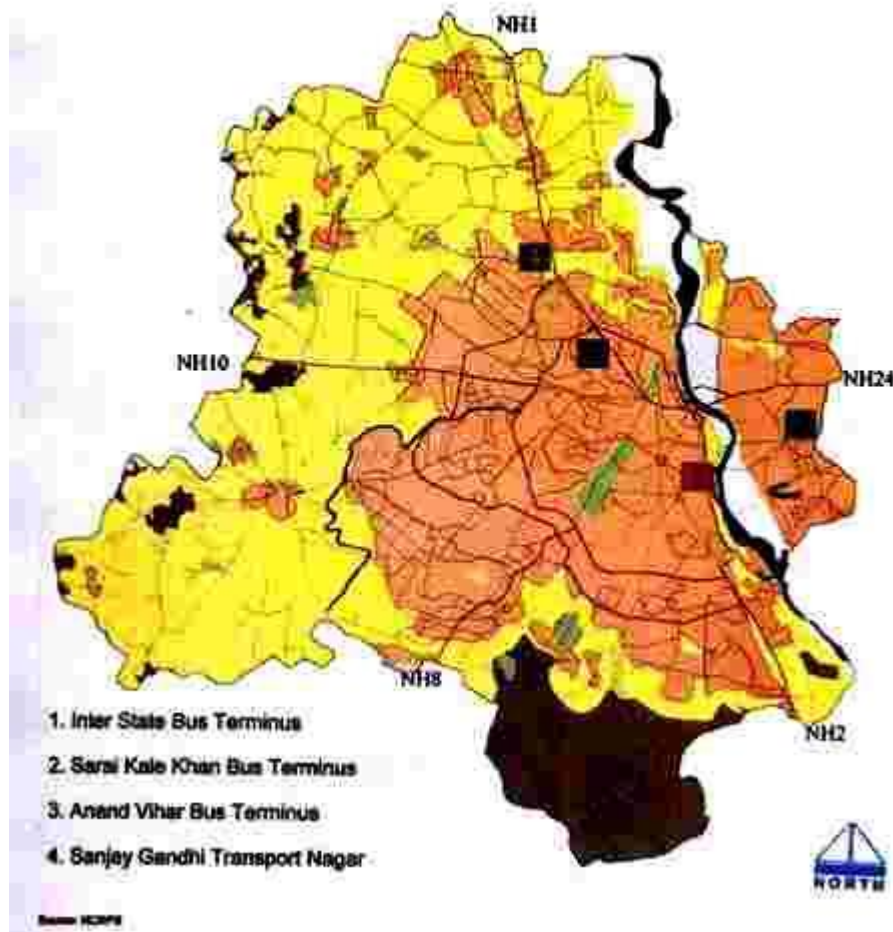
1. The phenomenal population growth in Delhi has been accompanied by an equally rapid increase in vehicle population. Delhi had 32.10 lakh motor vehicles in March, 1999 for a projected population of about 13.4 million. The number of vehicles per 1000 population increased from 192 in 1991 to 239 in March, 1999 (Table 12.1 & 12.2). Each household in Delhi had an average 1.19 vehicles in March, 1999. Delhi now has more vehicles than Mumbai, Chennai and Calcutta combined. The distribution of motor vehicles in Delhi (Table 12.3) indicates that the proportion of cars & jeeps has increased from 22% in 1990-91 to 25.5% in 1998-99, while the proportion of motor cycles & scooters, auto rickshaws and goods vehicles has declined. However the annual growth of motor vehicles has shown a declining trend since 1997-98 (Table-12.4).



National Highways

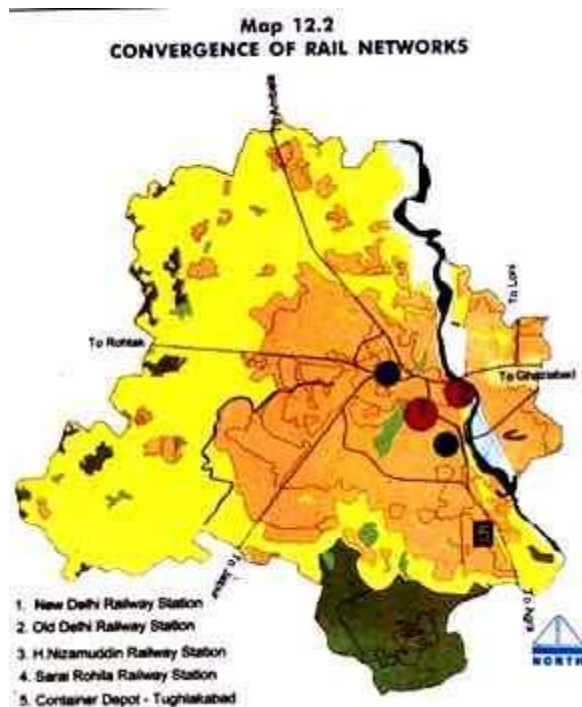
2. Five National Highways i.e. NH1, NH2, NH10, NH8 and NH24 pass through the National Capital Territory of Delhi, contributing significantly to the character of Delhi as a major trading and distribution center, as an entrepot and as the melting pot of India. Delhi continues to stand at the cross roads of modern India, with the Grand Trunk Road built by Sher Shah Suri from Karnal to Calcutta having been the precursor of NH-1 and NH-24.

Map 12.1
CONVERGENCE OF NATIONAL HIGHWAYS



Rail Network

3. Delhi is a major junction on the rail map of India linked with almost all Metropolitan cities directly. There are four major railway stations at New Delhi, Old Delhi, Hazrat Nizamuddin and Sarai Rohilla besides a Container Depot at Tuglakabad. There are 8 rail corridors in the National Capital Territory which bring in more than 350 passenger trains and 40 goods trains each day.

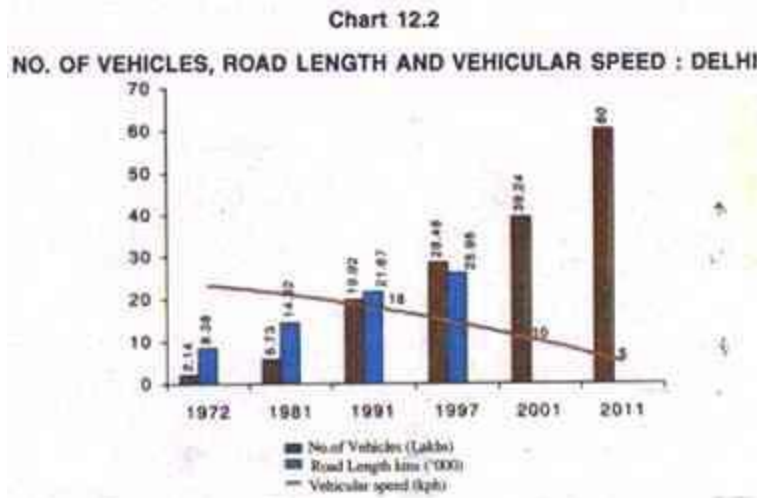


Modes of Transport

4. Delhi is predominantly dependent on road transport, with the railways catering to only about 1% of the local traffic. The ring rail network in Delhi is grossly underutilized. Buses cater to 62% of the total traffic while personal vehicles account for the balance 37%. Although, buses constitute only 1.1% of the total number of vehicles, they cater to 62% of the total traffic load. Among personalized vehicles, motor cycles and scooters comprise about two third of the total number of vehicles in Delhi, while cars and jeeps account for one fourth of the total vehicles. (Table 12.3)
5. Complete data about man and animal-driven vehicles in Delhi is not available. The unauthorized number of such vehicles is estimated to be more than those registered with the local bodies. Registered man and animal-driven vehicles constitute about 3.5% of the total vehicle population in Delhi out of which about 51% are cycle rickshaws (Table 12.5).

Road Network

6. The road network in Delhi is being developed and maintained by PWD, MCD, NDMC, Delhi Cantonment Board and DDA. The road network in Delhi was 25949 kms (including 337 kms of NHs) in March 1997. The growth of the road network in Delhi is shown in Table 12.6. Road length per 100 sq.kms, per 1000 population and per 1000 vehicles is given in Table No.12.7.
7. Delhi had 1749 km of road length per 100 sq. km area in 1996-97 compared to the national average of 73 km per 100 sq. km area (1995-96). The road network has increased from 8380 km in 1971-72 to 25949 km in 1996-97, (three times), while the number of vehicles has increased from 2.14 lakh in 1971-72 to 28.48 lakh in 1996-97 (thirteen times). The consequences in terms of heavy traffic congestion and reduced vehicle speed are self evident, as indicated below:-



Ring Road

8. The Ring road, Outer Ring road and the radial roads constitute a distinct feature of the road network in Delhi. Ring road has a length of 48 km, out of which 16 km is common with Outer Ring road and NH-1. The 6-lane carriage way of the existing Ring Road had reached the saturation capacity of 75,000 PCUs per day in 1994. Traffic is projected to reach between 1.5- 4 lakh PCUs by 2011, which will require expansion of the Ring Road to 18-24 lanes (Source: NCRPB).

Major Projects

Mass Rapid Transit System (MRTS)

9. The Mass Rapid Transit System (MRTS) is an ambitious project that aims at providing a non-polluting and efficient rail-based transport system, properly integrated with road transport. The first phase of the project, originally estimated to cost Rs. 4,860 crore (April 1996 prices) was approved in September, 1996. The project cost has been revised to Rs. 6251 crores at August, 1998 prices. Of the total cost, 56% is to be funded by Overseas Economic Cooperation Fund (OECF) of Japan, 30% is to be funded through equity support (15% each to be contributed by Government of Delhi and Central Government), 8% is to be funded through interest free subordinate debt (4% each to be contributed by Government of Delhi and the Central Government) and 6% is to be funded through property development. Government of NCT of Delhi has already contributed Rs. 308 crores as share capital upto December 1999 and Rs. 202 crores as subordinate debt for land acquisition. The first phase envisages the following three corridors:-

1.	Delhi University Central Sectt. (Metro/Underground Corridor)	11 Km
2.	Shahdara Tis Hazari Nagloi (Rail/surface/elevated Corridor)	25 Km
3.	Subzi Mandi Holambi Kalan (Rail/surface/elevated Corridor)	19.3 Km
	Total	55.3 Km

10. Project work commenced on 2nd October, 1998. Work on the Shahdara Tis Hazari section (8.3 Km) is in full swing and is scheduled to be completed by March, 2002

Integrated Freight Complexes

11. MPD-2001 envisaged the construction of 4 integrated freight complexes in Delhi at Madanpur Khadar (NH-2), Patparganj (NH-24), G.T. Road (NH-1) and Bhartal (NH-8). These 4 integrated freight complexes will consist of wholesale markets, warehousing, road (truck) and rail transport terminals so as to curtail the movement of heavy vehicles within the urban area. The freight complexes are conceived to shift wholesale trade, decongest the walled city and also cater to regional goods traffic flowing through Delhi. The project design and financing pattern is under consideration of DDA.

Peripheral Expressway

12. Delhi has emerged as major wholesale trade center for North India. It is estimated that 78% of vegetables and fruits, 49% of fuel, 44% of iron and steel and 47% of food grains traded in Delhi are destined for other States. The five national highways also bring interstate goods vehicles into the territory. This situation aggravates the traffic congestion, particularly on RING Road and other major roads of the city. As a solution to this problem, a peripheral expressway (94 km length) is proposed to be constructed along the western boundary of Delhi and through parts of Haryana. The tentative estimated cost is Rs. 2500 crores, which includes Rs. 500 crores for land acquisition. The project is at the concept stage and the feasibility of taking up the project on BOT basis is under examination. The development of the Peripheral expressway is linked with the development of integrated freight complexes.

Interstate Bus Terminals (ISBTs)

13. MPD-2001 suggested five ISBTs in Delhi by 2001. With the development of two new ISBTs at Sarai Kale Khan and Anand Vihar and the existing ISBT at Kashmere Gate, three ISBTs are functioning at present. These three ISBTs care to an average 1.54 lakh passengers and 3300 buses/trips per day. Two more ISBTs are proposed to be constructed during the 9th Five Year Plan at Dwarka and in North Delhi.

Flyovers and Bridges

14. A special programme for construction of 15 flyovers on Ring Road and outer Ring Road was started in 1998-99. Construction work on flyovers at Punjabi Bagh and Raja Garden, started prior to 1998-99, is in full swing. Construction of two major flyovers at Dhaula Kuan (Rs. 100 crores) and Safdarjung Crossing (Rs. 67.07 crores) is expected to begin shortly. Another 20 flyover projects are in the pipeline.

Delhi Transport Corporation

15. DTC was taken over by Govt. of N.C.T. of Delhi from Govt. of India in August, 1996. The DTC fleet comprised 3131 buses in 1998-99, which has increased marginally to 3200 buses in 1999-2000. A major fleet expansion is planned in 2000-01, with the number of buses projected to increase to 4600. DTC has also engaged 2623 buses of private operators under the kilometer scheme in 1999-2000. 87-90 percent of the DTC buses have been on road in the last two years, compared to a low of 53.7% in 1995-96. Fleet utilization has increased significantly since 1995-96.

16. About 57% of DTC buses are overage (exceeding eight years), out of which about 24% are more than 10 years old.

17. The DTC fleet comprised 8.9% of the total number of buses registered in Delhi in 1998-99.

Table 12.1

MOTOR VEHICLE POPULATION IN DELHI

(in Numbers)

Vehicle	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
1	2	3	4	5	6	7	8	9	10
Cars & Jeeps	398479	440166	477783	522264	575762	633802	705923	765470	818962
Motor Cycles & Scooters	1220640	1317180	1403050	1492201	1617732	1741260	1876053	1991710	2101876
Auto Rickshaws	63005	67128	70459	72102	74981	79011	80210	80210	86985
Taxis	10157	10694	11365	11846	12547	13765	15015	16654	17136
Buses	18858	20201	23221	24211	26202	27889	29572	32333	35254
Goods Vehicles	101828	107629	111277	116379	125071	133918	140922	146668	150243
Total	1812967	1962998	2097155	2239003	2432295	2629645	2847695	3033045	3210456

Source : Transport Department, Government of NCT of Delhi.

Table 12.2

GROWTH RATE OF MOTOR VEHICLES IN DELHI

Items	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
1	2	3	4	5	6	7	8	9	10
Number of Vehicles	1812967	1962998	2097155	2239003	2432295	2629645	2847695	3033045	3210456
Increase in number of Vehicles	175365	150031	134157	141848	193292	197350	218050	185350	177411
Annual Growth (%)	10.71	8.28	6.83	6.76	8.63	8.11	8.29	6.51	5.85
Number of Vehicles per 1,000 Population	192	199	204	208	217	224	232	236	239

Source : Transport Department, Government of NCT of Delhi.

Table 12.3**PERCENT DISTRIBUTION OF MOTOR VEHICLES IN DELHI**

Type of Vehicle	1990-91	1999-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
1	2	3	4	5	6	7	8	9	10
Cars & Jeeps	21.98	22.42	22.78	23.32	23.67	24.10	24.79	25.24	25.51
Motor Cycles & Scooters	67.32	67.11	66.90	66.65	66.51	66.23	65.88	65.67	65.47
Auto Rickshaws	3.48	3.42	3.36	3.22	3.08	3.00	2.81	2.64	2.71
Taxies	0.56	0.54	0.54	0.53	0.52	0.52	0.53	0.55	0.53
Buses	1.04	1.03	1.11	1.08	1.08	1.06	1.04	1.07	1.10
Goods Vehicles	5.62	5.48	5.31	5.20	5.14	5.09	4.95	4.83	4.68
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source : Transport Department, Government of NCT of Delhi.

Table 12.4**ANNUAL GROWTH RATE OF MOTOR VEHICLES**

Type of Vehicle	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
1	2	3	4	5	6	7	8	9	10
Cars & Jeeps	15.45	10.46	8.55	9.30	10.24	10.08	11.38	8.44	6.98
Motor Cycles & Scooters	9.65	7.90	6.52	6.35	8.41	7.64	7.74	6.16	5.53
Auto Rickshaws	6.90	6.54	4.96	2.33	3.99	5.37	1.52	0.00	8.45
Taxies	5.22	5.29	6.27	4.23	5.92	9.71	9.08	10.92	2.89
Buses	5.68	7.12	14.95	4.26	8.22	6.44	6.03	9.34	9.03
Goods Vehicles	9.75	5.70	3.39	4.58	7.47	7.07	5.23	4.08	2.44
Total	10.71	8.28	6.83	6.76	8.63	8.11	8.29	6.51	5.85

Table 12.5**MAN/ANIMAL DRIVEN VEHICLES IN DELHI**

	1993-94	1994-95	1995-96	1996-97
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1	2	3	4	5
Rickshaws	45963	45899	46386	55269
Tangas	867	796	679	613
Rehras	190	205	131	144
Hand Carts	4998	5518	5515	5448
Bullock Carts	442	423	426	430
Cycle, Rickshaws, Trolleys	35576	38925	42339	40666
Total	88036	91766	95476	102570

Source : Delhi Statistical Hand Book - 1998, Dte. of Eco. & Stat., Government of NCT of Delhi.

Table 12.6

AVAILABILITY OF ROADS IN DELHI

Agency	1980-81	1990-91	1993-94	1994-95	1995-96	1996-97
1	2	3	4	5	6	7
MCD	12129	18673	21452	21467	22769	22769
NDMC	1191	1289	1295	1297	1298	1299
DCB	124	143	144	144	144	144
PWD						
i) National Highway	302	324	337	337	337	337
ii) Other Road	570	1135	1400	1400	1400	1400
Total	14316	21564	24628	24645	25948	25949

Source: Delhi Statistical Hand Book - 1998 / Statistical Abstract 1977-96, Dte. of Eco. & Stat., Government of NCT of Delhi.

Table 12.7

DELHI ROADS BY AREA & POPULATION

Item	1993-94	1994-95	1995-96	1996-97
1	2	3	4	5
Total length of road	24628	24645	25948	25949
Average Length of road per 100 sq. Km.	1661	1662	1749	1749
Road length per 1000 population	2.35	2.27	2.21	2.15

Road length per 1000 vehicles.	10.99	10.13	9.87	9.11
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Source : Delhi Statistical Hand Book - 1998, Dte. of Eco. & Stat., Government of NCT of Delhi.