*Highlights of the Recommendations of*

# THE STATE LEVEL COMMITTEE ON ROAD CONNECTIVITY & TRAFFIC IMPROVEMENTS IN CHENNAI



AUGUST 2008

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# Acronyms

| | |
|---|---|
| A/R | Auto Rickshaw |
| AAI | Airport Authority of India |
| ADT | Average Daily Traffic |
| ALDS | Automatic LPG Dispensing System |
| ATC | Area Traffic Control |
| BG | Broad Guage |
| BOO | Build, Own & Operate |
| BOOT | Build, Own, Operate & Transfer |
| CBD | Central Business District |
| CCCBT | Chennai Contract Carriage Bus Terminal |
| CCMP | Comprehensive Mobility Plan for CMA |
| CMA | Chennai Metropolitan Area |
| CMBT | Chennai Mofussil Bus Terminal |
| CMDA | Chennai Metropolitan Development Authority |
| CNG | Compressed Natural Gas |
| CO | Carbon Monoxide |
| CoC | Corporation of Chennai |
| CoT | Committee on Transport |
| CPT | Chennai Port Trust |
| CTP | Chennai Traffic Police |
| CTS | Comprehensive Transportation Study |
| CTTS | Comprehensive Traffic & Transportation Study |
| DATC | Dr. Ambedkar Transport Corporation |
| DMRC | Delhi Metro Rail Corporation |
| DoH | Department of Highways |
| EPL | Ennore Port Limited |
| EPZ | Export Processing Zone |
| ETB | Electric Trolley Bus |
| EUC | Emission Under Control |
| FMP | First Master Plan |
| FoB | Foot Over Bridge |
| FSI | Floor Space Index |
| GIS | Geographical Information System |
| GNT Road | Grand Northern Trunk Road |
| GoI | Government of India |
| GoTN | Government of Tamil Nadu |
| GST Road | Grand Southern Trunk Road |

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| | |
|---|---|
| GWT Road | Grand Western Trunk Road |
| H&UD Dept. | Housing & Urban Development Department |
| ha | hectare |
| HHI | Household Interview |
| HOV | High Occupancy Vehicle |
| IPT | Intermediate Public Transport |
| IRC | Indian Road Congress |
| IRR | Inner Ring Road |
| IT | Information Technology |
| ITES | Information Technology Enabling Services |
| JNNURM | Jawaharlar Nehru National Urban Renewal Mission |
| km | kilometre |
| kmph | kilometre per hour |
| KWMC | Koyambedu Wholesale Market Complex |
| LB Road | Lattice Bridge Road |
| LC | Level Crossing |
| LPG | Liquified Petroleum Gas |
| LRT | Light Rail Transit |
| m | million |
| MATS | Madras Area Transport Study |
| MBI Road | Marmalong- Bridge- Irumbuliyur Road |
| mg. | milligram |
| MMA | Madras Metropolitan Area |
| MMDA | Madras Metropolitan Development Authority |
| MRTS | Mass Rapid Transit System |
| MTC | Metropolitan Transport Corporation |
| MUDP | Madras Urban Development Project |
| NH | National Highway |
| NHAI | National Highways Authority of India |
| NMT | Non-Motorised Transport |
| NO2 | Nitrogen dioxide |
| Nos./nos. | numbers |
| NUTP | National Urban Transport Policy |
| OMR | Old Mahabalipuram Road |
| ORR | Outer Ring Road |
| PCE | Passenger Car Equivalent |
| PCO | Public Call Office |
| PCU | Passenger Car Unit |
| PTC | Pallavan Transport  Corporation |
| PTCS | Pallavan Transport  Consultancy Services |
| RITES | Rail India Technical & Economic Services |

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| | |
|---|---|
| rly. | railway |
| ROB | Road Over Bridge |
| RSPM | Respirable Suspended Particulate Matter |
| RTS | Rapid Transit System |
| RuB | Road Under Bridge |
| SCAT | Sydney Co-ordinated Adaptive Traffic System |
| SCOOT | Split Cycle Offset Optimisation Technique |
| SEZ | Special Economic Zone |
| SMP | Second Master Plan |
| SO2 | Sulphur dioxide |
| SPM | Suspended Particulate Matter |
| sq.km | square kilometre |
| sq.m | square metre |
| T/W | Two Wheeler |
| TDM | Travel Demand Management |
| TDR | Transfer of Development Rights |
| TEU | Twenty Equivalent Unit |
| TN | Tamil Nadu |
| TNPCB | Tamil Nadu Pollution Control Board |
| TNRDC | Tamil Nadu Road Development Company |
| TNUDF | Tamil Nadu Urban Development Fund |
| TNUDP | Tamil Nadu Urban Development Project |
| TNUIFSL | Tamil Nadu Urban Infrastructure Financial Services Ltd. |
| TP | Town Panchayat |
| TPP Road | Tiruvottiyur- Ponneri- Panchetty Road |
| TSM | Trasnsport System Management |
| TSPM | Total Suspended Particulate Matter |
| UMTA | Unified Metropolitan Transport Authority |
| UNDP | United Nations Development Programme |
| V/C | Volume-Capacity Ratio |
| VP | Village Panchayat |
| WB | World Bank |
| µg/m3 | microgram per cubic metre |

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# TRAFFIC & TRANSPORTATION INFRASTRUCTURE PLAN FOR CMA AND THE SURROUNDING REGION

## 1. 0 Introduction

With the world urbanisation reaching 50% in the year 2007, the role of urban transportation assumes all the more significance, being the backbone of the urban infrastructure. The number of mega cities (with 10 million or more people) in the world, which was 2 in 1960 and 17 in 1999, would be 26 by the year 2015. Chennai would also be one among the mega cities by then.

1.2. Cities being the engines of growth, it is natural that most of the future world population would be concentrated in the urban areas, more so, in the developing cities of Asia. It makes economic sense given the fact that urban areas contribute significantly to the national GDP. In the case of India urban population, which accounts for 28%, contributes about 60% of the national GDP.

1.3. Liberalisation of the national economy by Government of India since early nineties has been redefining the role of urban areas particularly metropolitan cities in economic development. Being the focal points of the current and future economic activities, metropolitan cities need to reinvent themselves for absorbing the brunt of future developmental activities. Various economic models have established the strong correlation between infrastructure and GDP growth. The World Development Report has indicated that a 1% increase in the total infrastructure stock would translate itself into 1% increment in per capita GDP. As the quality of urban infrastructure particularly urban transport infrastructure is so vital for the vibrancy of metropolitan economy, it is imperative that the future efforts and investments are essentially directed at strengthening the same.

1.4. Chennai being the capital of the State of Tamil Nadu and also thegateway of South East Asia, it needs to gear itself to the daunting task of wresting the initiative from some of its neighbouring mega cities to play the lead role in the economic development of the region.

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1.5 With the overriding objective of improving the transport infrastructure for Chennai, Madurai and Coimbatore, the Govt. of Tamil Nadu has undertaken initiatives, at the instance of Hon'ble Chief Minister, through the constitution of the State Level Committee on Road Connectivity & Traffic Improvements in Chennai, Madurai and Coimbatore Cities in April 2007. On the basis of the deliberations at the meetings of the Committee and the recommendations of the 4 Sub-committees constituted by it to look into specific issues and a special meeting organised by CMDA with the Chairpersons of the 4 Sub-committees on 1-2-2008, an overall traffic and transportation infrastructure plan for CMA and the surrounding region in tune with the National Urban Transport Policy and the recommendations of the Working Group for the11th Five Year Plan on Urban Transport including MRTS has been prepared and submitted to the GoTN on 12-3-2008. At the request of the GoTN, the present document describes the Traffic & Transportation Infrastructure Plan for CMA and the Surrounding Region in the light of the initial findings of the on-going Comprehensive Transportation Study for CMA (CCTS).

## 2.0 Profile of the City

2.1 Chennai situated on the shores of the Bay of Bengal is the capital of the Tamil Nadu state and it is the fourth largest metropolis in India. Its older name' Madras' is officially changed to 'Chennai' in 1996.

2.2 Chennai Metropolis [with latitude between 12°50'49" and 13°17'24", and longitude between 79°59'53" and 80°20'12"] is located on the coramandal coast in southern India and the land is a flat coastal plain. Three rivers viz. Kosasthalaiyar, Cooum and Adyar pass through CMA and these rivers are placid and meander on their way to the sea. Buckingham Canal, a man made canal, is another large waterway which runs north-south through the Metropolis. Sholavaram lake, Red Hills lake and Chembarambakkam lake are the three large lakes in the area.

2.3 Chennai lies on the thermal equator and most of the year it is hot and humid. Highest temperature attained in May-June is usually about 40ºC (104ºF) for a few days.

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The coldest time of the year is early January and during that month the temperatures are about 20ºC (68ºF). Predominant wind direction is from south-east to north-west.

2.4 CMA comprises the area covered by Chennai City Corporation (176 sq.km) (Chennai District), 16 municipalities, 20 town panchayats and 214 villages forming part of 10 panchayat unions in Thiruvallur and Kancheepuram Districts. It extends over 1189 sq.km.

2.5 Majority of people in Chennai are Tamil speaking with sizeable population who speak Telugu language. Since Madras (presently Chennai) was the capital of the erstwhile Madras Presidency covering most of the areas now under the states of Andhra Pradesh, Karnataka and Kerala it has inherited a mix of languages viz. Telugu, Kannada and Malayalam. Chennai has become progressively more cosmopolitan after Independence with people from north mainly from Rajasthan, Gujarat and Punjab settling in the Metropolis for business. Theosophical Society and Kalakshetra School of Music and Dance located in southern Chennai attracted foreigners to settle in Chennai. Recently the growth of IT industries in the Metropolis is also attracting a mix of people from other states and also from other countries to Chennai. Chennai is famous for its classical dance called Bharathanatyam. The 'carnatic music season' event held every year during December and January is one of the world's longest cultural events attracting people not only from various places in India but also from foreign countries.

2.6 Chennai has a very heterogeneous mix of architectural style ranging from ancient temples to British colonial era buildings and to latest modern buildings. Most of the buildings constructed during colonial era are of Indo-Saracenic style.

2.7 Chennai is a major transportation hub for road, rail, air and sea transport connecting major cities inland and abroad.

2.8 Chennai is one of the major educational centres in India with a number of colleges and research institutions.

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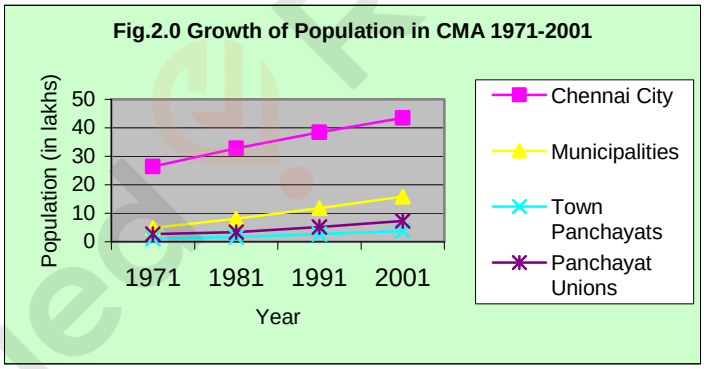
**Demographic Profile**

2.9 Chennai has a long history since 1639. The Chennai City Corporation was constituted in 1798. City extending over an area of 68 sq.km in 1901 had a population of 5.40 lakhs. Since 1941, it had grown rapidly. The growth of population in Chennai City and other local bodies within CMA is given in the Table 2.1 and in Fig.2.

**Table 2.1 Growth of Population in CMA**

| S.No. | Description | Population in lakhs | | | |
|---|---|---|---|---|---|
| | | 1971 | 1981 | 1991 | 2001 |
| 1. | Chennai City | 26.42 | 32.85 | 38.43 | 43.43 |
| 2. | Municipalities | 4.84 | 8.14 | 11.84 | 15.81 |
| 3. | Town Panchayats | 1.11 | 1.64 | 2.71 | 3.86 |
| 4. | Village Panchayats | 2.67 | 3.38 | 5.20 | 7.31 |
| 5. | CMA(Total) | 35.04 | 46.01 | 58.18 | 70.41 |

*Source: Census of India and CMDA*




2.10 The municipalities and Town Panchayats have experienced higher growth rate than that of the City. The density pattern indicates that the City has the highest gross density of 247 persons/ha, whereas the average gross density in CMA is only 59 persons/ha. The gross density in most of the municipal areas and Town Panchayats is very low, indicating that these areas offer high potential for growth and would be the receiving residential nodes in future.

2.11 Sex ratio is denoted by number of females per 1000 males. The sex ratio in CMA increased from 936 in 1991 to 956 in 2001.

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2.12 The analysis of literacy level in CMA shows that the incidence of illiteracy is found to be higher in Chennai City and CMA than in the State. The literacy rate in CMA and Chennai City is more or less the same and has exhibited an increase during 1991-2001.

2.13 Population projections have been carried out for CMA based on the past trends. It is estimated that CMA would house a population of 126 lakhs by 2026, of which Chennai City alone would account for 58 lakhs. The population projection of CMA is presented in Table 2.2.

**Table 2.2 Projected Population for CMA and Chennai City** *(in lakhs)*

| S.No. | Description | Actual | Projection | | | | |
|---|---|---|---|---|---|---|---|
| | | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
| 1. | Chennai City | 43.44 | 46.28 | 49.50 | 52.39 | 55.4 | 58.56 |
| 2. | Municipalities | 15.81 | 18.52 | 21.75 | 25.60 | 30.2 | 35.69 |
| 3. | Town Panchayats | 3.86 | 4.73 | 5.89 | 7.41 | 9.45 | 12.22 |
| 4. | Village Panchayats | 7.31 | 8.7 | 10.59 | 12.96 | 15.99 | 19.88 |
| 5. | CMA(Total) | 70.41 | 78.96 | 88.71 | 99.66 | 111.97 | 125.82 |

*Source: Master Plan II*

**Economic Profile**

2.14 CMA accounts for 16.2% of the State income from all sector. Chennai City alone accounts for 10.94% of the State income. Economic base of Chennai City shifted from trade & commerce to administration & services in the early decades of 20th century. The other features of the Metropolis are as follows:

- Manufacturing became an important sector, post – Independence; and
- Manufacturing base provided by automobiles **["Detroit of India"]** & transport equipment manufacture and their ancillary industries, railway coach buildings, petro chemicals, fertilizers, automotive tyres, bicycles, electrical & other machinery and leather products.

2.15 The economic growth of the Metropolis is underpinned by the following initiatives:

- Reforms to improve the investment climate;
- As quantitative would not suffice qualitative improvement to be brought about;

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- Public investments to act as a catalyst and private sector investments to act as major economic driver;
- Identification of thrust areas of economy – IT, Tourism, BioTech, Automobiles – and build industries & services around these areas ; and
- Cluster development to be encouraged for economies of conducting businesses – Special Economic Zones (SEZ), Export Processing Zone (EPZ), Industrial Estates – these would be the future growth drivers.

2.16 The growth potential of Chennai is marked by Export Processing Zone (1), Industrial Estates (5), Special Economic Zones (1) and Bio-Technology Park (1). Chennai manufactures everything from bicycles to battle-tanks. The range of products include weaving and apparel, refined petroleum products, automobiles and components, leather products, bicycles, tyres, railway coaches, transport equipments etc.

2.17 The CMA enjoys the best infrastructure facilities that any entrepreneur could desire. Two major Sea-ports, Domestic and International Airports, National and State Highway networks, railway networks, MRTS, excellent communication facilities, power, banking facilities, industrial estates, industrial complexes and industrial parks.

## 3.0 Existing Transportation System in the City

### Introduction

3.1 The rapid growth of population in the CMA has been causing a strain on the existing urban services and infrastructure, for want of expansion and better management. The transport sector is vital and needs carefully planned expansion to meet the demands of the increasing population.

3.2 The need to take an integrated long- term view of transport needs of CMA and to plan road development, public transport services and suburban rail transport as a part of the urban planning process have been well recognized as essential for the efficient functioning of the urban system.

3.3 Many studies have been done in the past for development of transportation in CMA. These include Madras Area Transport study (MATS - 1968), Integrated Transport Plan (1977), Madras Route Rationalisation study (1986), Traffic and Transportation study for MMA (1986), Comprehensive Traffic and Transportation Study (CTTS 1992-95) and

other studies done through consultants for specific transportation projects. Based on the recommendations of these studies several major projects such as formation of Inner Ring Road, addition of buses, improvements to Metropolitan Transport Corporation (MTC) infrastructure, Mass Rapid Transit system (MRTS) etc. have been taken up for implementation. But these efforts have not kept pace with the increase in travel demand.

3.4 The existing transportation system and its characteristics are briefly indicated below:

**Road Network**

3.5 The total length of road network in Chennai city is 2780 km. Chennai has radial and ring pattern of road network. Prime radial network comprises

(i) Anna Salai (NH45)
(ii) Periyar EVR Salai (NH4)
(iii) Chennai-Kolkotta salai (NH5) and
(iv) Chennai-Thiruvallur salai (NH205).

3.6 Other radial roads include Kamarajar salai, East Coast Road, Rajiv Gandhi Salai (OMR), NSK Salai (Arcot Road) and Thiruvottiyur High Road. Orbital road network implemented as per the First Master Plan comprises Jawaharlal Nehru Road (IRR) and Chennai By-pass Road. The orbital road network has improved the accessibility and reduced the congestion on the radial network particularly Anna Salai and Periyar EVR Salai. Radial roads in and around CMA for a length of 250 km have also been improved.

**Rail Network**

3.7 Commuter rail system in CMA operated by Southern Railways essentially consists of the following 3 lines:

(i) Chennai Beach - Tambaram, running south-west
(ii) Chennai Central – Thiruvallur, running west and
(iii) Chennai Central – Gummidipoondi, running north.

3.8 The first 2 lines have dedicated tracks for commuter trips. The 3rd line, however, caters to both suburban and inter-city passenger movement.

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3.9 In addition phase I and phase II of MRTS are currently in operation traversing a length of more than 20 km covering the residential and IT corridor in the south-eastern part of the City.

**Bus Transport**

3.10. MTC with a fleet size of 3093 buses is operating along 585 routes. Almost invariably buses run with crush-load. The overcrowding is as high as 150%. The demand far outstrips supply leading to inhuman conditions of travel. This could be attributed to the inadequate fleet strength and poor frequency. MTC has extended its coverage up to 50 km beyond the CMA. During 2007-08, MTC has purchased about 1000 new buses. It has also introduced a new service known as deluxe bus at a premium with an objective to encourage those who use personal modes to shift to bus transport.



**Goods Transport**

3.11 The number of goods vehicles in Chennai has increased from 6,671 in 1980 to 61255 in 2008. On a typical day, 78,155 goods vehicles cross the City limits and 35,281 goods vehicles the CBD boundary (CCTS, 2008). According to a study by CMDA (1985) the main items of movement are manufactured goods (15.5%), building materials (9.9%), industrial raw materials (9.2%), perishables (9.1%) and parcels (8.5%).

3.12 The most important places of arrival and dispatch are George Town, Salt Cotaurs, Chennai Harbour, industrial estates at Guindy and Ambattur and the timber yards near Chromepet and Tambaram on NH-45 and the petroleum installations at Korukkupet and Manali.

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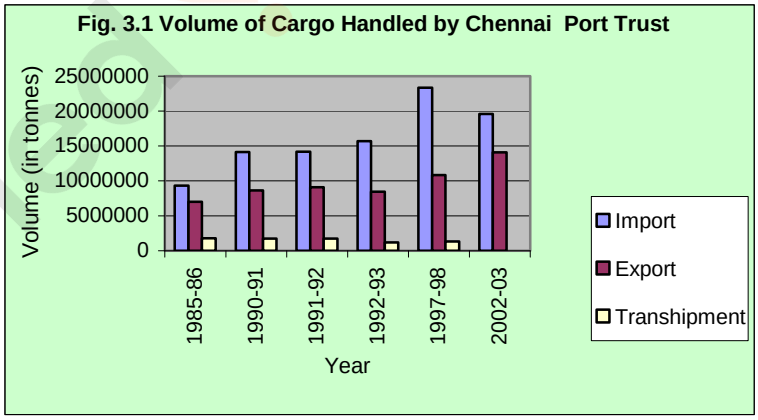
3.13 At present the movement of goods vehicles is considered as a nuisance and hazard to other users and several restrictions are placed on their movement which evidently places an economic cost on the City.

3.14 Chennai Metropolitan Development Authority (CMDA) had taken steps to shift some of the wholesale markets and create truck terminals on the periphery of the City. Of these Sattangadu steel market, Koyambedu perishables market and Madavaram truck terminal have been made operational.

**Seaport terminals**

3.15 The Chennai Port Trust (CPT) located in the CBD handled 33.69 million tonnes in 2002-2003. While the imports increased from 1.8 million to 19.61 million tonnes for the period 1951-52 to 2002-2003 registering a growth of 989%, the exports increased from 0.3 million to 14.1 million for the same period registering a growth of 4600% (vide Fig.3.1). Of the total import and export the foreign traffic handled accounts for 93% and the coastal traffic 7% for the year 2002-2003. While mineral oils and other POL account for 41% of the imports, iron-ore accounts for 56% of the exports (2002-2003). The imports are predominantly from south-east Asian countries accounting for 41% and the exports are made predominantly to Japan accounting for 14%.

**Fig. 3.1 Volume of Cargo Handled by Chennai Port Trust**




*Source: Annual Report, Chennai Port Trust, 2004*

3.16 CPT handled container traffic to the tune of 4,24,665 TEUs in 2002-2003, which was 23.3% more than that handled in the previous year. Some of the salient performance of the CPT included exporting 8,432 cars in 2002-2003, which was 103% more than that handled in the previous year. The Railways handled 12.3 tonnes of cargo

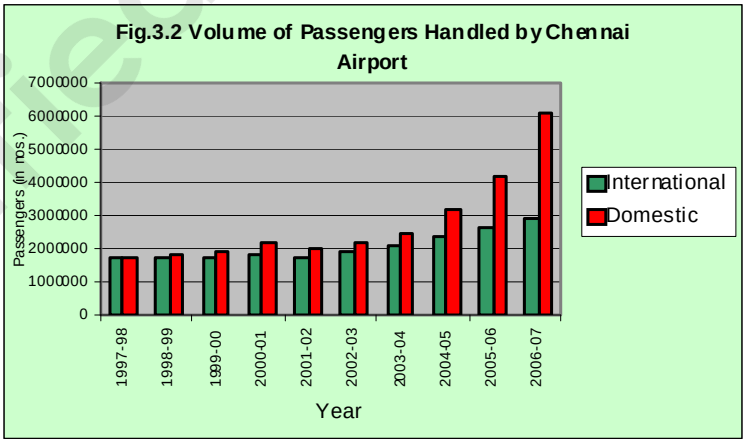
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traffic through 5, 24,320 wagons from the Port. A total of 1692 merchant vessels and 387 Government vessels entered the Port during the year 2002-2003.

3.17 The Ennore Port Limited (EPL), developed as a satellite port to CPT, is the 12th major port in India and the first corporate port in India. Designed to develop 22 berths to handle a variety of bulk, liquid and container cargo, EPL has 3.775km channel (250m wide and 16m deep) capable of handling 65,000-77,000 DWT vessels. The EPL commenced commercial operations on 22.6.2001. It presently handles around 10m tonnes of thermal coal per annum.

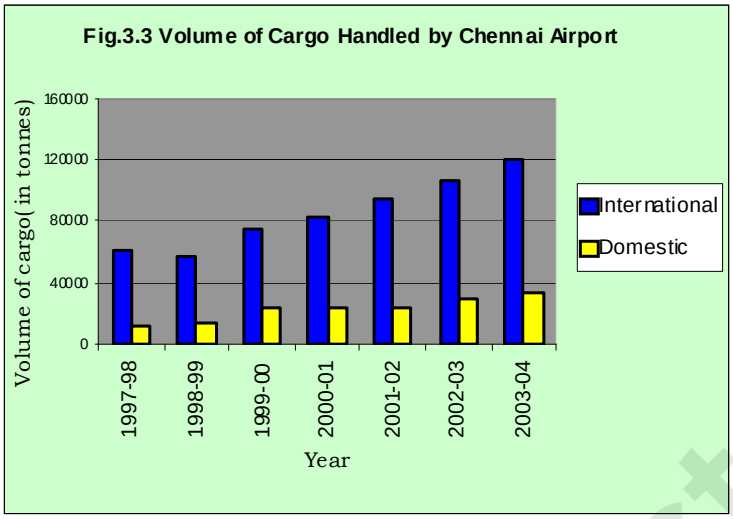
**Airport terminals**

3.18 Chennai has a national air terminal viz. Kamarajar Domestic Terminal and an international terminal viz. Anna International Terminal located at Meenambakkam. Totally 20 international flights per day are operated from Chennai. While the growth of international traffic is 5%, that of the national air traffic is 7%. The Airport Authority of India (AAI) imports 44,000 to 51,000 tonnes of cargo per year and exports 63,000 to 68,000 tonnes per year. While the growth of international passenger movement is 17.8% for the period 1997-98 to 2003-2004, the growth of passenger traffic within the country is 42.5% (vide Fig.3.2). Similarly the growth of international cargo movement is 93% for the same period and that within the country is 167% (vide Fig.3.3).




*Source: Airport Authority of India, 2004 & Sep. 2007*

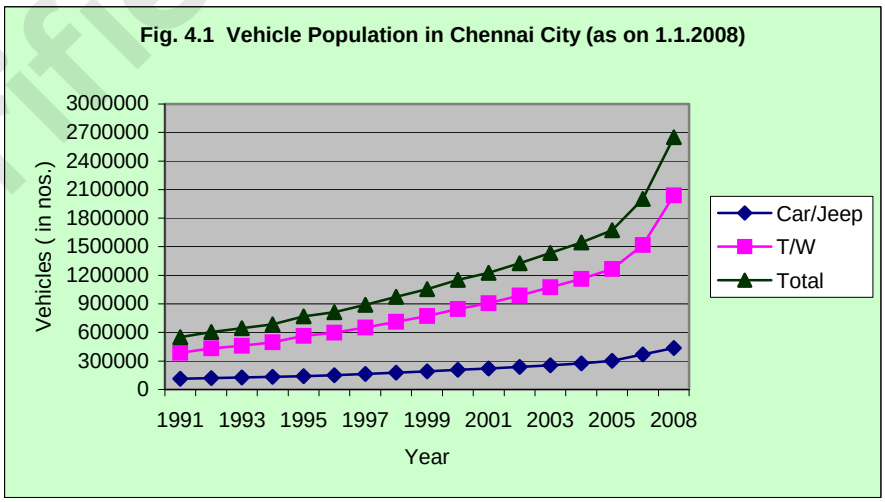
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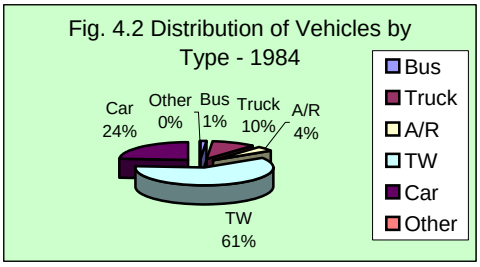

*Source: Airport Authority of India, 2004 & Sep. 2007*

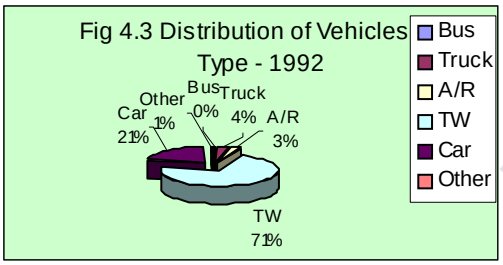
## 4.0 Vehicle Growth and its Composition

4.1 Motor vehicle population has increased at a phenomenal rate during the last few decades. Average growth rate per annum is about 9.7%. Fig.4.1 presents the trend of growth of motor vehicle population in Chennai City. Composition of vehicle population for the period 1984, 1992 and 2008 is shown in Fig. 4.2, 4.3 & 4.4 respectively. Figures reveal that the number of buses remained almost stagnant while two wheelers experienced a remarkable 24 – fold increase from 87,000 (1984) to 20, 38,875 (2008). The two wheelers constitute 77% of registered motor vehicles (It is 80% @ Hyderabad, 75% @ Bangalore, 64% @ Delhi, 45% @ Kolkata and 42% @ Mumbai).




Distribution of Vehicle type



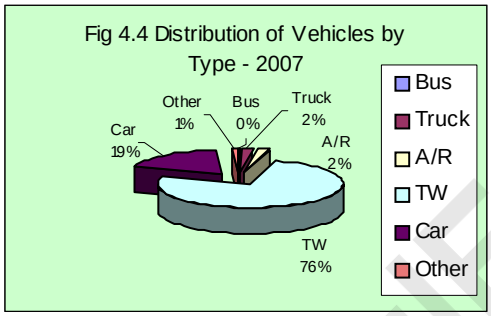




**Table 4.1: Modal Share of Trips in Different Cities**

| Name of City | Modal Share of trips (%) | | |
|---|---|---|---|
| | Pub.Transport | Walk | Cycle |
| Hyderabad | 35 | 22 | 9 |
| Chennai | 31 | 22 | 9 |
| Bangalore | 35 | 26 | 7 |
| Delhi | 43 | 21 | 12 |
| Kolkata | 54 | 19 | 11 |
| Mumbai | 45 | 27 | 6 |

*Source: Study on Traffic & Transportation Policies and Strategies in Urban Areas in India ( MoUD, GoI , May 2008)*

**Travel characteristics**

4.2 The present modal preferences of the commuters in the CMA are best characterised in that in a group of 100, 26 travel by bus, 2 by train, 33 by walk, 13 by cycle, 19 by two wheeler, 4 by car and 3 by other modes (*vide* Table -4.2).

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**Table 4.2 Daily Average Person Trip Distribution by Mode in CMA** *(Trips in million)*

| Sl. No. | Mode | No. & percent of total trips by mode | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1970 | | 1984 | | 1992 | | 2004 | | 2005 | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 1 | Bus | 1.10 | 41.50 | 3.074 | 45.50 | 2.84 | 38.00 | 2.89 | 29.00 | 2.47 | 25.8 |
| 2 | Train | 0.30 | 11.50 | 0.610 | 9.00 | 0.31 | 4.10 | 0.50 | 5.00 | 0.24 | 2.5 |
| 3 | Car/Taxi | 0.08 | 3.20 | 0.103 | 1.50 | 0.11 | 1.50 | 0.40 | 4.00 | 0.36 | 3.8 |
| 4 | Fast TW | 0.04 | 1.70 | 0.219 | 3.20 | 0.52 | 7.00 | 1.80 | 18.00 | 1.83 | 19.1 |
| 5 | Auto rickshaw | - | - | 0.024 | 0.40 | 0.16 | 2.20 | 0.20 | 2.00 | 0.29 | 3.0 |
| 6 | Bicycle | 0.57 | 21.30 | 0.720 | 10.70 | 1.06 | 14.20 | 1.30 | 13.00 | 1.23 | 12.8 |
| 7 | Cycle rickshaw & others | 0.00 | 0.10 | 0.105 | 1.60 | 0.24 | 3.50 | 0.10 | 1.00 | 0.03 | 0.3 |
| 8 | Walk | 0.55 | 20.7 | 1.895 | 28.10 | 2.21 | 29.50 | 2.79 | 28.00 | 3.14 | 32.7 |
| | TOTAL | 2.65 | 100.00 | 6.750 | 100.00 | 7.45 | 100.00 | 9.98 | 100.00 | 9.59 | 100.00 |

*Source: MATS (1968-69), Short-term Traffic Improvement Programme Report (MMDA & KCL, 1984) & CTTS (MMDA, RITES, KCL & PTCS, 1992-95), & Short term study to Update CTTS (1992-95)(CMDA, RITES & PTCS, 2004), HHI Survey of the DPR for the Chennai Metro Rail Project, DMRC, 2005*

4.3 Per Capita trip rate was 1.30 per day and trip rate per household was 5.88 per day, as per the CTTS (Comprehensive Traffic and Transportation Study of 1992-95). The per capita trip rate across various cities in the country are indicated in the Table 4.3

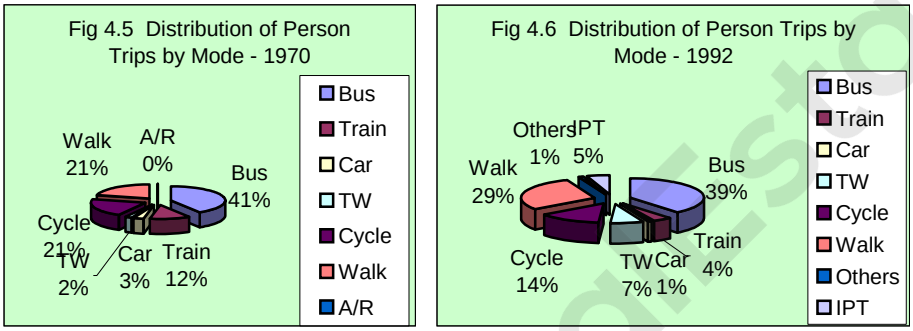
**Table: 4.3 Per Capita Trip Rate in different Indian Cities**

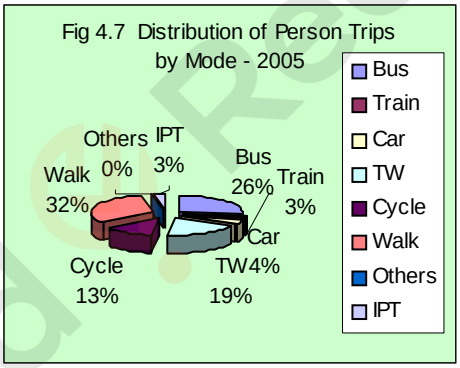
| City | Per capita Trip Rate |
|---|---|
| Hyderabad | 1.45 |
| Chennai | 1.50 |
| Bangalore | 1.41 |
| Delhi | 1.56 |
| Kolkata | 1.55 |
| Mumbai | 1.67 |

*Source: Study on Traffic & Transportation Policies and Strategies in Urban Areas in India ( MoUD, GoI , May 2008)*

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4.4 Total person trips performed in Chennai were about 7.45 m and 9.59 m during 1992 and 2005 respectively. Fig. 4.5, 4.6 & 4.7 present distribution of person trips by mode during 1970, 1992 and 2005. It could be observed that the share of public transport, cycle and IPT have declined over years. This dismal trend can be attributed to the increasing vehicular ownership, the stagnant growth of bus fleet and the unsafe rights-of-way for the cycles.




**Road Network**

4.5 Arterial roads leading to the CBD carry heavy traffic and are congested. Level of congestion on arterials and other major roads has increased seven-fold for the period 1984 to 2004. The average volume carried by Anna Salai during 2006 was about 1.58lakh PCU as against its capacity of 60,000 PCU per day. The traffic pertaining on some of the critical intersections and road links within the City and in the Outer-CMA are indicated in Table 4.4 & 4.5

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| Table 4.4 Traffic Volume on Major Intersections | | | |
|---|---|---|---|
| S.No. | Name of the Roads / Intersections | Traffic Volume *(in PCU)* | |
| | | ADT | Peak Hour |
| ***Intersections*** | | | |
| 1. | Madhya Kailash | - | 10,246 |
| 2. | Porur | - | 13,180 |
| 3. | Vadapalani | 2,07,995 | 14,233 |
| 4. | Thirumangalam | 1,88,452 | 26,838 |
| 5. | Halda | - | 18,330 |
| 6. | Moolakadai | - | 8,525 |

| Table 4.5 Traffic Volume on Major Roads | | | |
|---|---|---|---|
| S.No. | Name of the Roads / Intersections | Traffic Volume *(in PCU)* | |
| | | ADT | Peak Hour |
| ***Arterial Roads*** | | | |
| | *Within City* | | |
| 1. | Anna Salai (NH45) | 1,57,856 | 10743 |
| 2. | Periyar EVR Salai (NH4) | 1,62,160 | 11,512 |
| 3. | Erukkanchery High Road (NH5) | 69,765 | 4,542 |
| 4. | Jawaharlal Nehru Salai (IRR) | 1,42,211 | 8,685 |
| 5. | Sardar Patel Road | - | 5065 |
| | *Outer-CMA* | | |
| 6. | Koladi Road | 15,826 | 1,824 |
| 7. | Taramani Link Road | 31,305 | 3,361 |
| 8. | Marmalong Bridge-Irumbuliyur Road | 27,112 | 2,438 |
| 9. | TPP Road | 8,348 | 569 |

*Source: Traffic Census, Sep.2006, Projec Feasibilityt Reports by various Consultants, 2005- 2007*

4.6 On an average, 1,780 new vehicles are put on roads every day without corresponding increase in motorable road space. The increase in road space accounts for only 3 to 4% of the total area, the value of very low order when compared with 11% in Bangkok and 20-25% in developed cities such as London, Paris or New York, 21% in New Delhi and 11% in Coimbatore.

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## 5.0 Transport Deficiencies

5.1 Capacity of almost all roads in the present system is reduced due to poor quality of riding surface, inadequate pedestrian pavement, poor lighting conditions and lack of properly designed intersections. The volume capacity ratio (V/C ratio) on many of the links during the peak hour is more than one. The V/C ratio for a sample of road links in 1993 and 2008 are indicated in the Table 5.1

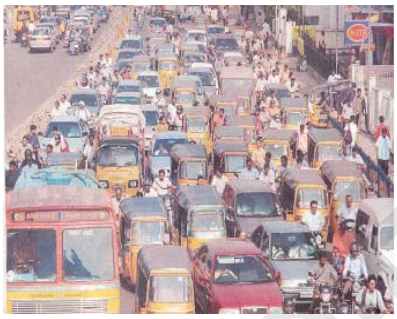


**Table 5.1 Level of Congestion along Major Roads during 1993 & 2008**

| S. No. | Road | Capacity of the Road | CCTS(1992-95) | | CCTS(2008-09) | |
|---|---|---|---|---|---|---|
| | | | Peak Vol. in PCU | V/C | Peak Vol. in PCU | V/C |
| 1 | Anna Salai *(@ Saidapet )* | 2700 | 3741 | 1.39 | 13721 | 5.08 |
| 2 | Periyar EVR Salai *( @ Aminjikarai)* | 1800 | 2918 | 1.62 | 5653 | 3.14 |
| 3 | Jawaharlal Nehru Salai *(@ Ekkatuthangal )* | 2700 | 2173 | 0.80 | 7429 | 2.75 |
| 4 | Erukanchery High Road *( @ Vyasarpadi )* | 1500 | 2799 | 1.87 | 3984 | 2.66 |
| 5 | Mount - Poonamalee Road *(@ MIOT Hospital )* | 1800 | 708 | 0.39 | 5659 | 3.14 |
| 6 | Thiruvottiyur High Road *(@ Washermenpet Rly. Station )* | 900 | 1865 | 2.07 | 7498 | 8.33 |
| 7 | Durgabai Deshmukh Road *(@ Thiru. vi. ka bridge)* | 1450 | 3783 | 2.61 | 10747 | 7.41 |
| 8 | Rajaji Salai *@ Beach Rly.Station)* | 1140 | 2901 | 2.54 | 1889 | 1.66 |
| 9 | Perambur High Road *(@ Perambur Rly.Station)* | 600 | 1426 | 2.38 | 5714 | 9.52 |

*Source: CTTS (MMDA, RITES, KCL & PTCS, 1992-95), CCTS (WSAPL, 2008)*

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5.2 Phenomenal growth of vehicles coupled with minimal increase in road space, has led to a low speed of 15 kmph in CBD and 20 kmph in other major roads. The declining speed on important road links from 1968 to 2008 is indicated in Table 5.2. Provision of orbital roads such as IRR and Chennai By-pass (southern segment) has, however, increased the speed on the radial roads.

**Table 5.2 Speed along Major Roads during 1968, 1993 & 2008**

| S.No | Road | MATS (1968) | CTTS (1993) | CCTS (2008) |
|---|---|---|---|---|
| 1 | Anna Salai | - | 35 | 32 |
| 2 | Periyar EVR Salai | 33 | 30 | 28 |
| 3 | Velachery Road | Nil | 38 | 33 |
| 4 | Jawaharlal Nehru Road | Nil | 37 | 27 |
| 5 | Sardar Patel Road | Nil | 36 | 23 |
| 6 | Durgabai Deshmukh Road | Nil | 31 | 27 |
| 7 | Santhome High Road | Nil | 28 | 27 |
| 8 | Kamarajar Salai | Nil | 40 | 35 |
| 9 | Rajaji Salai | Nil | 35 | 24 |
| 10 | Lattice Bridge Road | Nil | 37 | 32 |
| 11 | Rajiv Gandhi Salai | Nil | 43 | 28 |
| 12 | New Avadi road | Nil | 35 | 28 |
| 13 | Erukanchery High Road | 33 | 23 | 22 |
| 14 | East Coast Road | Nil | 50 | 30 |
| 15 | G.N.T. Road | 42 | 40 | 37 |

*Sourc: MATS (1968-69), CTTS (MMDA, RITES, KCL & PTCS, 1992-95), CCTS (WSAPL, 2008)*

5.3 Establishment of multi-national car companies in the vicinity of the CMA (Mahendra Ford Company at MM Nagar, Hyundai Company at Sriperumbudur, Hindustan Motors at Tiruvallur) and establishment of Tide Park and a large of number of IT (Infosys, Wipro, TCS) and IT Enabling Service establishments is tending to increase car ownership in the CMA thereby adversely affecting the traffic condition. With the mushrooming financial institutions making available easy finance to own motorised vehicles by individuals, the problems of the traffic congestion on city roads will escalate further.

5.4 Certain missing links especially in the orbital direction have also reduced the efficiency of movement.

5.5 Ad hoc use of the carriageway and footpaths for utilities and inadequate and poorly maintained drainage system also affect the efficient use of the roads.

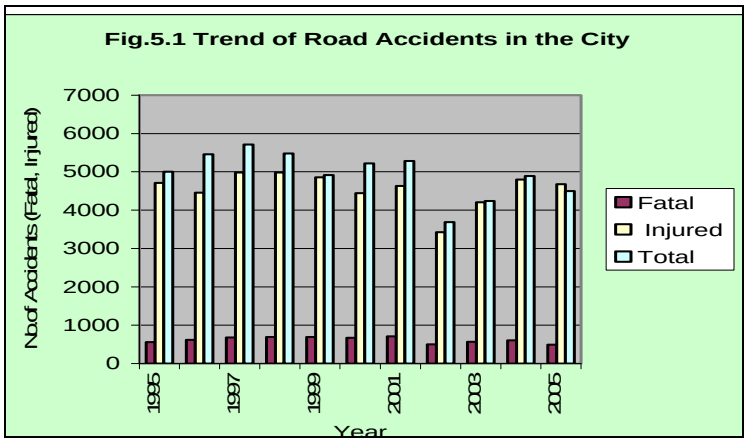
5.6 Demand for parking in the CBD is 2 times the supply. Acute shortage of parking supply is witnessed in commercial areas of Anna Salai, T. Nagar, Purasawalkam and Mylapore. Unauthorised and indiscriminate parking impedes free flow of traffic and causes accidents. Peak parking demand, as per a study in 2003, was 13,000 PCE as against the supply of 5,100 PCE. For example the supply in T. Nagar was 794 PCE against a demand of 2151 PCE and the supply in Parrys was 704 PCE against a demand of 4426 PCE. The haphazard parking has led to loss in the road capacity that ranges between15% to 60%.



5.7 Conflicts between fast moving vehicular traffic and bicycle and pedestrian traffic have reduced the capacity and safety.

5.8 Accident data reveal that on an average about 620 persons die on City roads annually**.** Fig. 5.1 shows the trend of road accidents over the years. Fatality rate works out to 35/10,000 vehicles. Other sources of data indicate that 42% of road accidents involve pedestrians and 10% cyclists. Chennai Traffic Police (CTP) is responsible for reporting and investigation of road accidents. The accident rate across various cities in the country is indicated in the Table 5.3.

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*Source: Chennai Traffic Police, 2006*



**Table: 5.3 Accident Rate in different Indian Cities**

| Name of City | Accident Rate | |
|---|---|---|
| | % of fatal Accidents | Total accidents/lakh pop. |
| Hyderabad | 19 | 87 |
| Chennai | 23 | 58 |
| Bangalore | 11 | 80 |
| Delhi | 13 | 25 |
| Kolkata | 22 | 57 |
| Mumbai | 4 | 111 |

*Source: Study on Traffic & Transportation Policies and Strategies in Urban Areas in India ( MoUD, GoI , May 2008)*

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5.9 Lack of organised parking including loading/unloading facilities for trucks is resulting in reduced capacity and safety of movement.

5.10 Permanent and temporary encroachments of footpaths and carriageways have reduced the capacity of the road. Pedestrian flows are significant at many critical locations across the city road network, a sample of which is indicated in Table 5.4

**Table: 5.4 Pedestrian Flows at Different Locations**

| Sl. No. | Location | Pedestrian Count | |
|---|---|---|---|
| | | Peak Hour | Per day |
| **Within City** | | | |
| 1 | Aminjikarai Market | 3299 | 18966 |
| 2 | Anna Nagar 2nd Avenue Road | 2183 | 15372 |
| 3 | Anna Salai near SIET College | 3280 | 22241 |
| 4 | Arcot Road near Meenakshi College | 2434 | 18038 |
| 5 | Arcot Road X Jawaharlal Nehru Salai | 4369 | 31982 |
| 6 | Broadway | 10037 | 75665 |
| 7 | Light House | 913 | 6975 |
| 8 | Doveton | 2547 | 21943 |
| 9 | Egmore Railway Station | 4686 | 37224 |
| 10 | Perambur Bus Stop | 2040 | 16939 |
| 11 | CMBT | 1233 | 7849 |
| 12 | Queen Marys College | 1058 | 4272 |
| 13 | Kathipara Junction | 2255 | 24992 |
| 14 | Koyambedu Junction | 1652 | 13645 |
| 15 | LB Road near Thiruvanmiyur Bus Stand | 8631 | 36351 |
| 16 | Luz Intersection | 3777 | 26401 |
| 17 | Mint Intersection | 6178 | 55782 |
| 18 | Pachaiyappas College | 1110 | 9071 |
| 19 | Rattan Bazaar X Evening Bazaar jn. | 13888 | 128008 |
| 20 | T. Nagar Bus Stand - Usman Road | 11518 | 83074 |
| 21 | Vijaya Nagar Bus Stand | 5834 | 39027 |
| **Outside City** | | | |
| 22 | Arcot Road at Porur Junction | 5622 | 34770 |
| 23 | Ambattur Ind. Estate Bus Stand | 3388 | 21227 |
| 24 | Avadi Bus Stand | 5613 | 41122 |
| 25 | PallavarAM Bus stand | 3875 | 33008 |
| 26 | Tambaram Bus Stand | 4179 | 34486 |
| 27 | Chrompet Bus stand | 4781 | 31328 |
| 28 | PH Road near Maduravoyal Market | 1103 | 7182 |
| 29 | Poonamalle High Road Vs Thiruverkadu Jn | 880 | 7097 |
| 30 | Thiruvottiyur Bus Stand Junction | 2337 | 16139 |

*Source: CCTS (WSAPL, 2008)*

5.11 The City faces severe problem of congestion due to runaway growth of personalised vehicles. The traffic management in the City is marked by introduction of a series of one-way traffic system. The one-way traffic system has, however, implications on pedestrian safety and fuel consumption. One-way traffic is generally desirable when there are complementary roads and the additional traveling distance is not more than 300m as per IRC. Hence whenever such systems are introduced, the interests of public transport modes and pedestrians are duly addressed.

5.12 Traffic control devices, traffic signs and road markings are not adequately maintained to retain their legibility and visibility. Inadequate enforcement of traffic rules, lack of road sense and restraint by road-users and insufficient regulatory measures characterise the present situation.

5.13 Pollution due to vehicular emission has done a lot of harm to the environment. Periodical monitoring conducted by the Tamil Nadu Pollution Control Board (TNPCB) revealed the following level of pollution:

| *Pollutant* | *Load* | *Permissible level* |
|---|---|---|
| Carbon Monoxide (CO) | 1908 to 4198 µg/$m^3$ | 2000 µg/$m^3$ |
| Suspend particulate Matter (SPM) | 264 TO 451 µg/$m^3$ | 200 µg/$m^3$ |

5.14 Another study carried out by TNPCB has also shown that the emission from nearly half the vehicles in the City exceeded the permissible limit. The air quality across different cities is indicated in Table 5.5.



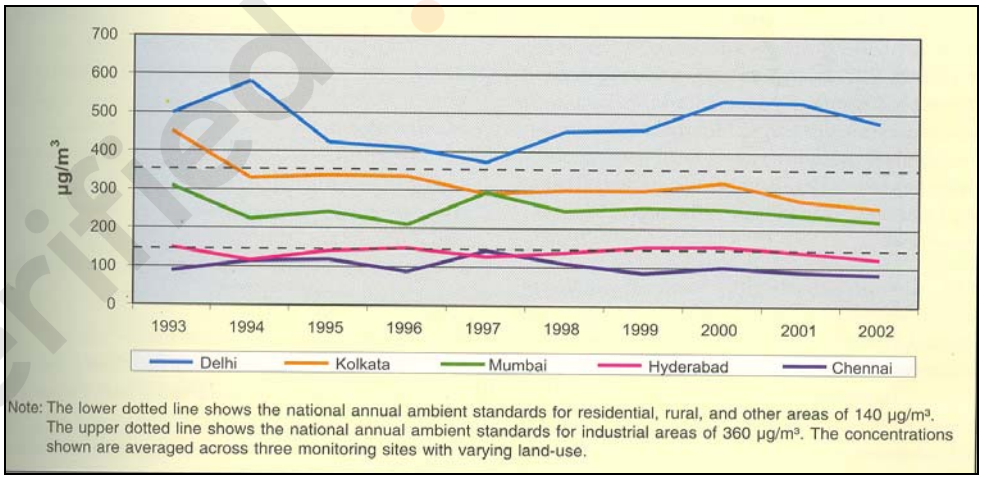
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| Table: 5.5 Air Quality in different Indian Cities | | | |
|---|---|---|---|
| City | Concentration ($\mu g/m^{3)}$ | | |
| | Sulphur di oxide ($SO_2$) | Nitrogen di oxide ($NO_2$) | Respirable Suspended Particulate Matter (RSPM) |
| Chennai (Adyar) | 7 | 12 | 94 |
| Delhi ( B.S.Z.Marg) | 7 | 70 | 133 |
| Mumbai (Sion) | 35 | 103 | 293 |
| *National Standard* | *80* | *80* | *100* |

*Source: CPCB, 2007*

5.15 The annual average concentrations of SPM, RSPM, $SO_2$ and $NO_2$ in the CMA in comparison with other major cities in the country are depicted in Fig.5.2, 5.3, 5.4 and 5.5.

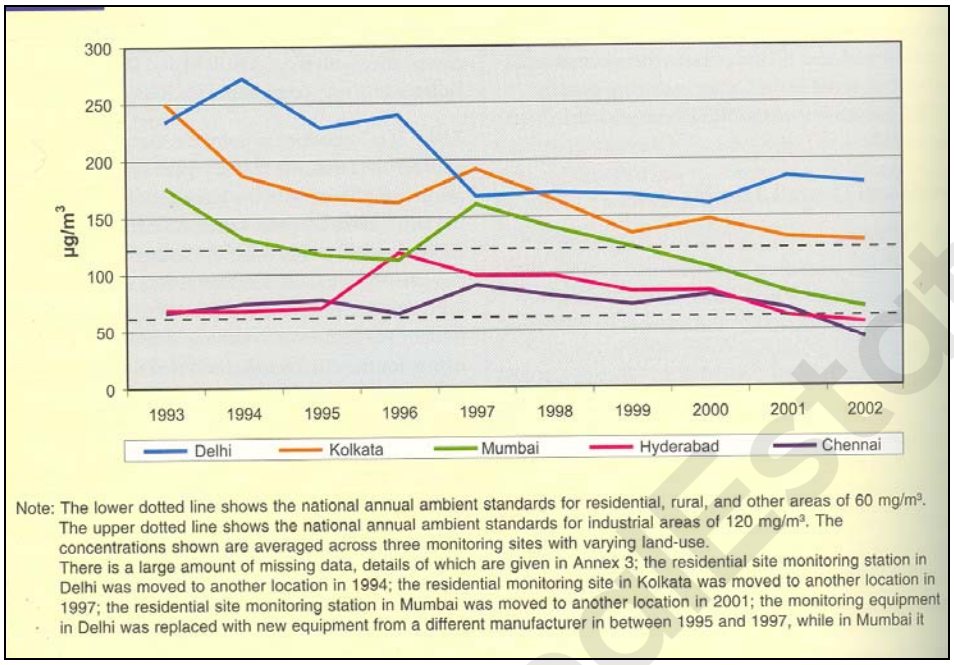
**Fig. 5.2 Annual Average SPM Concentrations in the Five Cities**




Source: The World Bank, June 2005

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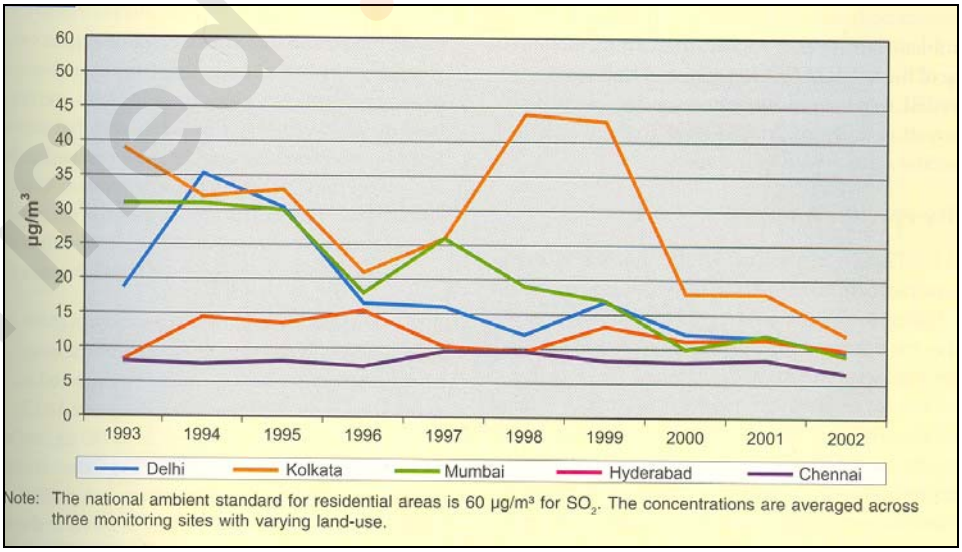
**Fig. 5.3 Annual Average RSPM Concentrations in the Five Cities**




Note: The lower dotted line shows the national annual ambient standards for residential, rural, and other areas of 60 mg/m³. The upper dotted line shows the national annual ambient standards for industrial areas of 120 mg/m³. The concentrations shown are averaged across three monitoring sites with varying land-use.
There is a large amount of missing data, details of which are given in Annex 3; the residential site monitoring station in Delhi was moved to another location in 1994; the residential monitoring site in Kolkata was moved to another location in 1997; the residential site monitoring station in Mumbai was moved to another location in 2001; the monitoring equipment in Delhi was replaced with new equipment from a different manufacturer in between 1995 and 1997, while in Mumbai it

*Source: The World Bank, June 2005*

**Fig. 5.4 Annual Average $SO_2$ Concentration in the Five Cities**

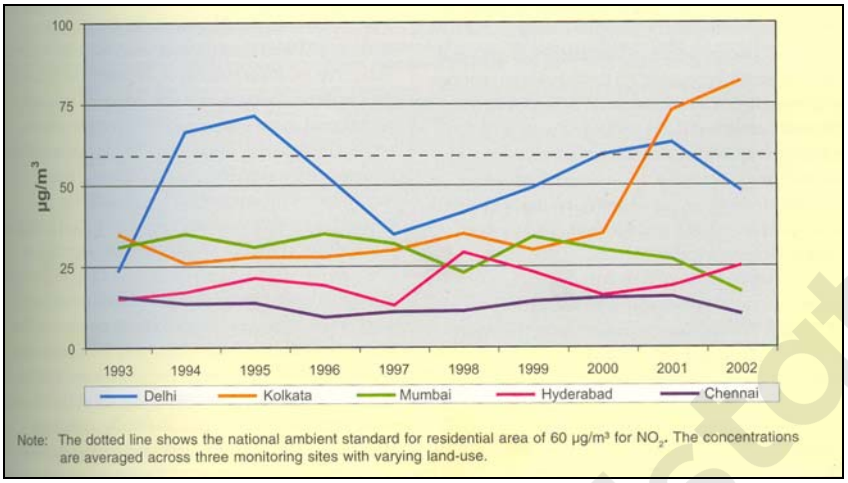



Note: The national ambient standard for residential areas is 60 µg/m³ for $SO_2$. The concentrations are averaged across three monitoring sites with varying land-use.

*Source: The World Bank, June 2005*

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**Fig. 5.5 Annual Average $NO_2$ Concentration in the Five Cities**




*Source: The World Bank, June 2005*

5.16 The concentration of activities in the CBD attracts large volume of avoidable truck traffic into the already congested roads of the City.

5.17 Both bus and rail modes developing as competing modes rather than being complementary to each other and the sprawling suburban development without adequate transport facilities have placed considerable demand in favour of private vehicles and have emphasised the warrant for interchange facilities at mass transit stations.

5.18 Poor drainage system compounded by frequent cutting open of carriageways and footpaths for attending to utility / service lines repair thereby substantially reducing the effective availability of road space / footpath.

**Railways**

5.19 The most used commuter line is Chennai Beach -Tambaram rail line and its capacity is limited and restricted by a number of grade crossings.





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5.20 Inter-modal transfers from bus to rail and vice versa is generally absent or under-developed and there is no system integration of the rail and bus modes.

(i) The capacity of Chennai Beach – Tambaram rail line is especially restricted by the presence of a number of road / rail level crossings. Both the Chennai Beach – Tambaram and the Chennai Central – Gummidipoondi rail corridors witness overcrowding of trains during peak hours.

(ii) Despite development of the new rail corridor viz. MRTS, the patronage of the corridor has been below par until recently. The same can be attributed to many factors which include lack of adequate access and circulation, under-development of inter- modal interchanges at the stations, higher rail fares and non-exploitation of the inter- operability of services among the four rail sectors. It is, however, heartening to note that with the recent fuel price hike, the ridership on the train system has been increasing progressively with the total daily ridership breaching the 6-lakh mark.

**Bus Transport**

5.21 There is acute overcrowding in buses during peak hours in almost all the routes and in off-peak periods also in certain routes. The supply is grossly inadequate leading to inhuman conditions of travel in buses.

**Goods Transport**

5.22 There are too many restrictions on the movement of goods vehicles. The number of routes for goods movement is limited. With the expanding activities of both the sea ports, there is no commensurate increase in the supply of roads particularly for goods in the form of exclusive or partially exclusive corridors. There is acute shortage of parking for goods vehicles. All these add to the economic cost on the City.

## 6.0 Major efforts taken

6.1 Notable measures taken to improve and strengthen the transport supply in CMA in the past include:

a) Procurement of about 305 buses under Madras Urban Development Project MUDP-I, 915 buses under MUDP-II and 1600 buses under Tamil Nadu Urban Development Project (TNUDP) through PTC and DATC (now merged into MTC) was made at a cost of about Rs.63 m, Rs.221 m and Rs.927.50 m respectively.

b) In addition, 3 bus depots and 8 terminals were constructed during MUDP-I and 10 bus depots/terminals under TNUDP.

c) The following rail projects were implemented by Southern Railways.

i) Quadrupling Chennai-Arakkonam B.G. Line (upto Pattabiram);

ii) Gauge conversion of Chennai Beach - Tambaram - Chengelpattu lines including optimisation of the line (by replacing road/rail level crossings by overpasses or underpasses) (under implementation);

iii) Development of Mass Rapid Transit System (MRTS) from Chennai Beach up to Thirumylai for a length of 8.5 km in the I Phase at a cost of Rs.2690 m commissioned in 1997; and

iv) Commissioning of II phase of MRTS from Thirumylai to Velachery (11.165 km) at cost of Rs.7960 m.





6.2 Critical bottlenecks in the road network have been improved under MUDP I (Rs.15.20 m), MUDP II (Rs.63 m) and TNUDP (Rs.839 m) through Department of Highways (DoH) and Chennai Corporation (CoC). These included forming an inner ring road for a length of 17.5 km initially and dualling its carriageway subsequently. The balance of it comprising the northern segment for a length of 12.5 km has been formed and the southern segment for a length of 6 km. is being formed. The First phase of Chennai Bypass connecting NH 45 and NH 4 for a length of 19 km at a cost of Rs.900 m has already been completed and commissioned in November 2002. Development of Chennai Mofussil Bus Terminal (CMBT) at Koyambedu has been completed at a cost of Rs.1030 m and commissioned in Nov. 2002. Chennai City Contract Carriage Bus Terminal (CCCBT) has also been constructed and commissioned. Improvements to radial roads in and around CMA have been carried out for a total length of 250 km at a cost of 2120 m.

6.3 Drawing a cue from the document viz. Action plan for IT corridor, 2003 prepared by CMDA, GoTN have commenced implementation of a high quality 6-lane arterial road from Chennai to Mammallapuram for a length of 47 km at a cost of Rs.1217.4 m through IT Expressway Ltd., a special purpose vehicle floated through TNRDC to serve the IT and ITES industries located primarily in the southern outer-CMA.

6.4 Recognising the fact that the capacity of the urban road network can be appreciably increased by removing the major bottlenecks in the network particularly along such strategic roads such as IRR, it has been proposed to construct well-designed grade separators at all the critical intersections of radial roads with IRR. In the first phase NHAI on its own is developing 3 grade separators at Kathipara, Padi and Koyembedu intersections and one opposite airport on GST Road at a total cost of Rs.210 crores. These are expected to be completed with a period of 18 to 24 months. The Kathipara grade-separator has since been partially commissioned. The GoTN are proposing to develop the grade-separators at Thirumangalam and Vadapalani intersections of IRR in the second phase.

**Non-transport developments**

6.5 The Government in the Transport Department have already taken various initiatives for introducing innovative technologies for motorised vehicles. The Govt. have recently directed for induction of 5000 LPG operated autos in the city. There are also 14 no. ALDS (automatic LPG Dispensing System) in the city. Already electric operated cars manufactured by a company (Reva) are on the roads of Chennai. The strategy to improve the air quality in the metropolis will be principally governed by such conscious measures as to tilt the modal share in favour of public transport modes and the initiatives being taken both by GoI and GoTN to phase out lead in petrol and sulphur dioxide in diesel, making it mandatory on the part of vehicle manufacturers to conform to Bharat II, to introduce pollution-free fuels such as CNG/LPG for vehicle operation.

6.6 Several non-transport measures were also implemented over the last decade to reduce traffic congestion. These include decentralisation of the CBD, viz., shifting of the whole-sale market to koyambedu, the Iron and Steel Market to Sathangadu, construction of truck terminal at Madhavaram which have relieved the arterials and other City roads considerably from the lorry and bus traffic.

6.7 The traffic and transportation schemes are presently implemented by several departments and agencies. While long-term planning and coordination is carried out by CMDA, individual schemes are executed by Southern Railway, National Highways Authority of India (NHAI), Department of Highways (DoH), Corporation of Chennai (CoC), and Metropolitan Transport Corporation (MTC). The roads within the local body areas are improved and maintained by the Directorate of Municipal Administration, Directorate of



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Town Panchayats and Directorate of Rural Development through the local bodies concerned. As regards traffic management and enforcement, the same is looked after by the CTP in respect of Greater Chennai Area and District Police for the rest of the CMA. The Chennai Metro Rail Limited (CMRL) has been set up recently for implementation of the Metro Rail Project.

6.8 The traffic and transportation schemes are presently implemented by several departments and agencies. While long-term planning and coordination is carried out by CMDA, individual schemes are executed by the respective line departments. There are a number of committees to coordinate the implementation of transport schemes in the CMA. In the absence of financial and administrative powers vested with these committees, the coordination effected by these committees is limited.

6.9 The National Transportation Policy Committee (1980) recommended establishment of single transport authorities for Delhi, Mumbai, Calcutta and Chennai. In pursuance of this the Government of Tamil Nadu (GoTN) in June 1994 accepted in principle to form a Unified Metropolitan Transport Authority (UMTA) for Chennai. Based on the recommendations of a consultancy commissioned in 1995, GoTN have taken up with Govt. of India (GoI) for the setting up of the UMTA for Chennai.

6.10 The National Urban Transportation Policy approved by the GOI in April 2006 has also recommended creation of UMTA. Following various initiatives taken subsequently, the GoTN have since constituted a cell for UMTA for Chennai on 24-10-2007.

6.11 Under the UNDP-UNCHS supported Sustainable Chennai Project, through the deliberations of the action committee and working groups certain actions for sub-strategies such as (i) optimising the utility of existing transport infrastructure; (ii) enhancing the modal share of rail and bus and (iii) improving the air quality were discussed and implemented.

## 7.0 Travel Demand Forecast

7.1 The Second Master Plan for CMA which has been prepared with the widest public participation has been submitted to Govt. on 23-11-2007 for approval. In the Second Master Plan travel demands have been projected on the basis of increase in per capita trips. The per capita trip that was 1.44 in 2005 (*HHI Survey carried out as part of*

*the DPR for the Chennai Metro Rail Project, DMRC, 2005)* has been projected to 1.6 by 2016 and 1.65 by 2026. The comprehensive Traffic and Transportation Study (CTTS) for CMA undertaken in 1992-95 through a consortium of consultants, M/s. RITES and M/s. KCL and the quick study carried out through M/s RITES in 2004 essentially provided the basis for forecasting the future travel demand in the CMA. Table 7.1 gives 3 scenarios based on different modal splits between the public and private transport and between the road and rail systems.

**Table 7.1 Projected Daily Trips by Public and Private Transport**

| | | 1991 | 2004 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| 1. Population in lakh | | 58.07 | 75.61 | 78.96 | 88.71 | 99.62 | 111.98 | 125.82 |
| 2. Daily per capita Trips | | 1.29 | 1.32 | 1.34 | 1.5 | 1.6 | 1.6 | 1.65 |
| 3. Total Daily Person Trips in lakh | | 74.91 | 99.81 | 105.81 | 133.07 | 159.39 | 179.17 | 207.60 |
| Scenario 1 Modal Split % | Private | 57.00 | 64.57 | 60.00 | 50 | 45 | 40 | 35 |
| | Public | 43 | 35.43 | 40.00 | 50 | 55 | 60 | 65 |
| Total Daily Person Trips by Public Transport in lakh | | 32.21 | 35.36 | 42.32 | 66.53 | 87.67 | 107.50 | 134.94 |
| | By Rail % | 9.25 | 14.54 | 16.00 | 20 | 25 | 30 | 25 |
| | By Road % | 90.75 | 85.46 | 84.00 | 80 | 75 | 70 | 75 |
| Daily Trips in lakhs | | | | | | | | |
| | By Rail | 2.98 | 5.14 | 6.77 | 13.31 | 21.92 | 32.25 | 33.74 |
| | By Road | 29.23 | 30.22 | 35.55 | 53.23 | 65.75 | 75.25 | 101.21 |
| | | 1991 | 2004 | 2006 | 2011 | 2016 | 2021 | 2026 |
| Scenario 2 Modal Split % | Private | 57 | 64.57 | 55.00 | 45 | 40 | 35 | 30 |
| | Public | 43 | 35.43 | 45.00 | 55 | 60 | 65 | 70 |
| Total Daily Person Trips by Public Transport in lakh | | 32.21 | 35.36 | 47.61 | 73.19 | 95.64 | 116.46 | 145.32 |
| | By Rail % | 9.25 | 14.54 | 16.00 | 25 | 30 | 35 | 40 |

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| | | 1991 | 2004 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|---|---|
| | By Road % | 90.75 | 85.46 | 84.00 | 75 | 70 | 65 | 60 |
| Daily Trips in lakh | By Rail | 2.98 | 5.14 | 7.62 | 18.30 | 28.69 | 40.76 | 58.13 |
| | By Road | 29.23 | 30.22 | 39.99 | 54.89 | 66.94 | 75.70 | 87.19 |
| Scenario 3 Modal Split % | Private | 57 | 64.57 | 50.00 | 40 | 35 | 30 | 25 |
| | Public | 43 | 35.43 | 50.00 | 60 | 65 | 70 | 75 |
| Total Daily person Trips by Public Transport in lakh | | 32.21 | 35.36 | 52.90 | 79.84 | 103.60 | 125.42 | 155.70 |
| | By Rail % | 9.25 | 14.54 | 20.00 | 30 | 35 | 40 | 45 |
| | By Road % | 90.75 | 85.46 | 80.00 | 70 | 65 | 60 | 55 |
| Daily Trips in lakhs | By Rail | 2.98 | 5.14 | 10.58 | 23.95 | 36.26 | 50.17 | 70.07 |
| | By Road | 29.23 | 30.22 | 42.32 | 55.89 | 67.34 | 75.25 | 85.64 |

*Source : CTTS(MMDA, RITES, KCL & PTCS, 1992-95) & Short term study to update CTTS (1992-95)(CMDA, RITES & PTCS, 2004)*

7.2 The 3 scenarios have been worked out gradually increasing the modal share of the public transport and also increasing the share of the rail transport within the public transport modes. Scenario 2 has been selected based on the following assumptions.

i) The modal split between public and private transport will change from 28:72 (2005) to 55:45 (2011) and 60:40 (2016), 65:35 (2021) and 70:30 (2026) in line with the trend in share of public transport increasing with city size.

ii) The sub modal split between bus and rail will have to change from 91:9 (2005) to 75:25 (2011) and 70.30 (2016), 65:35 (2021) and 60:40 (2026).

7.3 The total person trips in the CMA which was 9.59 m / day in 2005 have been projected to 20.76 m / day in 2026 (*vide* Fig.7.1). Further it will be seen from the Table 7.2 that the number of trips carried by bus transport in 2005 would become nearly 3.5 times in the year 2026. Similarly the volume of passengers to be carried by rail transport will be nearly 24 times the present volume.

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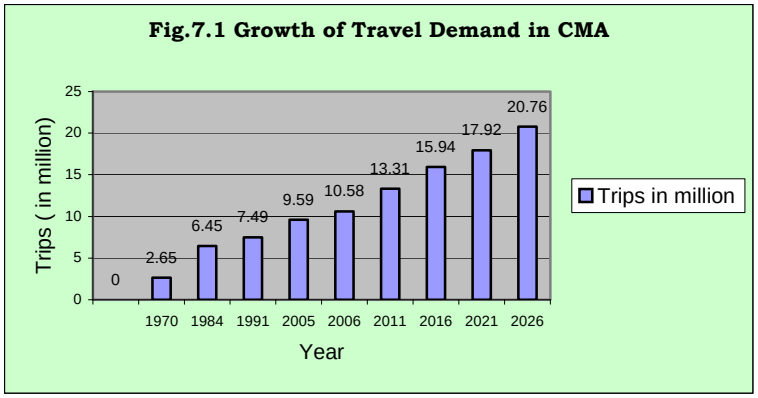
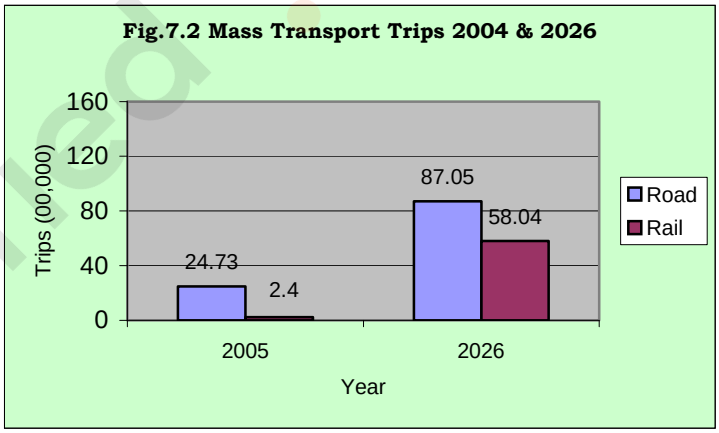



**Table 7.2 Mass Transport Trips 2005 & 2026**

*(in lakhs)*

| Mass Transport Trips (in lakhs) | 2005 | 2026 |
|---|---|---|
| Total Mass Transport Trips | 27.13 | 145.09 |
| Increase in 22 years | - | 109.73 |
| Total road (bus trips) | 24.73 | 87.05 |
| Increase in 22 years | - | 56.83 |
| Total rail trips | 2.40 | 58.04 |
| Increase in 22 years | - | 52.90 |

*Source: CTTS(MMDA, RITES, KCL & PTCS, 1992-95) & Short term study to update CTTS (1992-95)(CMDA, RITES & PTCS, 2004); HHI Survey of the DPR for the Chennai Metro Rail Project, DMRC, 2005*




## 8.0 Policies and Strategies

8.1 Keeping broadly in view the NUTP, the travel demand projected for the future, the recommendations of the Sub-committees and the recommendations incorporated in the (draft) Second Master Plan for CMA (SMP), strategies have been evolved for ensuring safe, affordable, quick, comfortable, reliable and sustainable access for the residents of the CMA to jobs, education, recreation and such other needs. The policies and strategies proposed are as follows:

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**Moving people rather than vehicles**

8.2 Redefining the role of both the rail and bus transits so that they move the bulk of the travel demand in the metropolis. The strategy includes within itself

- Augmenting the coverage and capacity of the rail and bus transits including an optimal fleet mix / unit length to effectively respond to the varying commuter demand levels resulting in higher accessibility and mobility to the commuters
- Optimising the integration of the rail and bus transit network
- Removing bottlenecks in the rail transit and bus transit networks i.e. replacing road / rail level crossings by underpasses / overpasses, providing flyovers at critical road intersections
- Priority for bus transit by reservation of lanes along major arterial roads including bus- bays as prelude and priority at traffic signals
- Making the transit system affordable to all segments of the commuting population by differential pricing commensurate with the level of service, at the same time reducing the gap between the cost of operation and the revenue and
- Running mini-buses between the rly. stations and nearby bus transit corridors and between rly. stations and residential areas.

**Integrating land use and urban transportation**

8.3 Recognising the strong interrelationship between land use and transportation, land uses can be planned matching transportation supply and vice versa. The strategy includes within itself

- Carrying forward the process of planning and developing a road and transport network based on comprehensive traffic and transportation studies, as done in the implementation of the First Master Plan
- Recognising the energy, economic and environmental advantages of densifying developments around transit nodes, restructuring the land use distribution and disposition accordingly
- Ascertaining the adequacy or otherwise of the road and transport supply vis-à-vis the land use planning for the plan period by undertaking a comprehensive transportation study and
- Recognising the fact that there is a wide gap in the supply of 2nd and 3rd order roads in the Outer-CMA and that in the absence of which the primary road network gets unduly congested, developing a road network plan with a grid of 2km x 2km so that development of these road grids is implemented by the respective local bodies.

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**Priorities to non-motorised transport (NMT)**

8.4 Appreciating the fact that the modal share of trips made by cyclists and pedestrians is more than 45%, allocating higher proportion of road space for them, if not an equitable one. The strategy includes within itself

- Footpaths are not less than 1.5m in residential streets and 3.0m on major roads with commercial activities
- Redeeming the existing footpaths from such encroachments as flag-posts, hoardings, hawkers, shops, places of worship, eat-outs, construction materials, parking of vehicles, PCOs, telephone boxes, electrical transformers / junction boxes, traffic umbrellas, waste bins, milk booths etc.
- As in the case of evicting the encroachments on water-bodies with stringent penal actions as provided for in the recent Ordinance, similar legal framework is proposed for evicting the encroachments on footpaths / roads
- Demarcating stretches of roads or areas exclusively for movement by pedestrians and cyclists and
- Providing safe passage of pedestrian / cyclists by sub-ways.

**Optimising the existing road and transport infrastructure**

8.5 Keeping pace with the increasing mobility requirements, increasing the supply of road and transport infrastructure. The core of the strategy, apart from creating new additional infrastructure, includes within itself

- Optimising the capacity of existing road network by widening critical road links and intersections
- Optimising the capacity of signalised road intersections by periodically recalibrating the signal cycle times to cope with the traffic volumes including deployment of Area Traffic Control (ATC) system
- Programming to widen all the roads to their prescribed street alignment width in a phased manner with a finite timeframe
- Articulating the road network by developing missing links
- Improving the throughput of a corridor as a whole by appropriate intersection treatment in a phased manner vis-à-vis improving intersections sporadically across the road network
- Introducing high occupancy vehicles (HOV) lanes along critical road corridors
- Commensurate with the development densities along the corridor(s) upgrading the same as multi-modal transit corridors
- Introducing additional sub-urban rail stations along existing rail corridors
- Quadrupling the existing sub-urban rail system

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- Augmenting the rail network for commuting by shifting the inter-regional terminal from city core to the city fringe (e.g. shifting the long distance terminal from Egmore to Tambaram) and
- Increasing the length of trains (3 coaches to 6 coaches to 9 coaches).

**Putting a parking policy in place**

8.6 Recognising parking control as a powerful tool in combating traffic congestion, the strategy is to

- Give effect to the off-street parking norms arrived at for various landuses through a comprehensive parking study; these are binding on all including the enforcing authority namely Chennai Traffic Police
- Develop multi-level parking at major traffic generating locations with (or without) private participation
- Develop park-and-ride facility at all critical sub-urban / RTS / metro rail stations
- Develop park-and-ride facility at all critical bus terminals
- Enforce effectively accommodating visitors' parking within flats
- Launch a special drive by CPT to remove unauthorised on-street parking and in the case of certain critical commercial streets, ban on-street parking permanently after giving adequate notice to the commercial establishments to arrange to provide off-street parking on their own to their customers, recognising the fact that the roads are meant only for movement and not for parking
- Introduce the concept of community parking
- Use the underneath space of flyovers for parking
- Ban operation of tourist cars / vans / taxis / trucks / lorries / buses if the operators do not have parking of their own
- So price the parking as to improve the parking turnover and reduce the use of private modes
- Make land owning agencies viz. Corporation of Chennai etc. to readily part with their land for the construction of multilevel parking complexes and
- Review the adequacy of parking standards periodically say, once in 5 years to cope with the increasing vehicular growth.

**Redefining the role of para-transit**

8.7 Recognising the gap in travel demand unserved by either the transit modes or private modes, redefining the role of para-transit as a viable modal choice. The strategy is to

- Encourage wider coverage and capacity by the para-transit comprising autos, share autos, taxis, call taxis, call autos, maxi-cabs and cycle rickshaws

- Provide parking for para-transit at critical rail stations / bus terminals / bus stops
- Encourage cycle-rickshaws to operate between residential areas and transit routes and
- Regulate the operation of para-transit by enforcing minimum safety norms.

**Segregating freight traffic from passenger traffic**

8.8 The seaport activities of the City necessitate the freight traffic to flow to and from the CBD. With the expanding cargo movement and the general traffic flowing virtually all through the day without the distinction between peak and non-peak hours, the necessity to plan and develop exclusive and semi-exclusive freight corridors not only from economic considerations but also to minimise the conflicts between passenger and freight traffic. The strategy is to

- Plan and develop exclusive elevated corridors for freight traffic within the City core
- Plan and develop orbital roads in the form of urban bypasses to segregate inter-city traffic from intra-city traffic which essentially facilitate semi-exclusive freight movement
- Enhance the connectivity of seaports with National Highways and
- Plan and develop outstation truck terminals and parking.

**Deploying various travel demand management (TDM) measures**

8.9 Recognising the fact that all the travel demand can not be satisfied by matching road and transport supply, the potentials of attacking the problem on the demand side itself rather than on the supply side merit consideration. The strategy is to

- Stagger the school opening times zone- wise
- Stagger the office opening times
- Stagger the holidays to markets sub-CBD- wise
- Encourage car-pooling and van-pooling
- Encourage the coverage and fleet size of share autos and maxi-cabs
- Allocate HOV lanes along major arterial roads
- Encourage new industrial complexes to provide quarters for their employees within their premises
- Decentralise major activities to reduce traffic
- Encourage tele-shopping and shopping through internet
- Deploy congestion pricing, hefty parking fees, permit system to own private vehicles, etc.

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**Putting in place an environmental development management mechanism**

8.10 To mitigate the negative impact of vehicular traffic on environment particularly air quality, it is necessary that various suitable measures are taken. The strategy is to

- Enlarge the segments of vehicular population converted to pollution free fuels viz. LPG / CNG / battery
- Strictly enforce the road users obtain EUC
- Establish an air quality monitoring system which maps the quality of air across the road network periodically
- Subject every major transport development measure to comply with environmental safeguards and
- Subject every major transport development measure to safety audit.

**Setting up a unified institutional framework encompassing all modes**

8.11 Recognising the positive synergies in setting up a single organisation to take care of all vehicular modes and to remove or minimise the redundancies in the number of departments / agencies presently looking after the various functions to plan, operate and regulate the different modes, creating a set up namely Unified Metropolitan Transport Authority (UMTA) for Chennai. The strategy is to

- Set up UMTA within a specified timeframe with coordinating, planning and advisory role initially but eventually graduating into a full-fledged regulatory and tariff fixing authority for all urban transport modes in CMA
- Take continued efforts to integrate bus and rail transport pending the formation of UMTA
- Mobilise additional resources for road development including collection of betterment levy provided for in the Tamil Nadu Highways Act
- Make private sector to participate not only in the development of urban transport infrastructure but also in the operation (e.g. bus transport, LRT, multilevel parking, toll plaza etc.) by employing such financing models as BOO, BOOT etc.
- Implement those options of development of urban transport infrastructure borne out of broad based public participatory approach and
- Establish a traffic database by capturing information on the traffic along road corridors by installing automatic traffic recorders.

**Enforcement as a potential tool for development**

8.12 Unless the enforcement is incisive, the entire urban development planning exercise will not produce the desired results. The traffic could have been kept well under



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control if only the encroachments on road / footpaths and the unauthorised on-street parking have been ruthlessly removed by effective enforcement. The strategy is to

- Effectively keep all the roads, footpaths and designated off-street parking clear of encroachments both by the asset owning agencies and by the CTP by constant patrolling
- Organise campaigns and special drives to educate the road users to adhere to traffic discipline
- Delink driver training and licensing from the vehicle registration and licensing and
- Ensure training institutes catering to heavy vehicle drivers have driving simulators and audio visual presentation and evaluate drivers by written, oral and field tests.

**Promoting other transit options**

8.13 Given the configuration of certain segments of the road network which can not lend themselves for development of metro rail or RTS, it is necessary to identify alternative transit solutions matching the profile of these segments of road network. The strategy is to

- Plan and develop mono-rail / LRT /ETB
- Plan and develop SKYBUS and
- Plan and develop hovercraft transport along seacoast.

**Promoting innovative technologies / practices**

8.14 The utility and capacity of urban transport infrastructure can be maximised by reinventing some of the (abandoned but) best practices or by deploying methods and techniques exploiting the advances in new technologies. The strategy is to

- Introduce the potential of information technology in the traffic management system viz. SCOOT / SCAT in area traffic control system, advanced passenger traveller information system etc.
- Make available the road metal recycling machinery (associated milling machine) to the contractors or include in the contract document use of the machinery mandatory to ensure that new road surface is laid without increasing the height of the pavement, considering the avoidable nuisances, caused by the constant raising of the road levels, to the properties on either side
- Construct half-elevated and half-below-road pedestrian sub-way which allows ease of crossing the road with the objective of improving the utility of pedestrian subways
- Adopt German type mobile flyover technology on pilot basis and extending the same based on its success

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- Dewater vehicular sub-ways promptly during monsoon and use the same for rain water harvesting
- Construct foot-over bridge / pedestrian sub-way connecting shopping complexes on either side in commercial centres
- Develop any road from the edges so that the reserve land is naturally protected as median
- Develop new roads with service roads and ducts for services / utilities
- Cement-concrete the existing road pavement particularly the road intersections
- Take advance action to acquire land or tracts of land around major transit nodes / intersections so that these could be utilised not only for major junction improvement in future but also plan and develop organised urban (growth) centres exploiting the vantage location of these lands and
- Exploit the TDR concept for assembling land for any of the transport infrastructure requirements including recessed bus-bays, channelised junction improvements, community parking, on-street parking etc.

## 9.0 Medium and Long Term Transport Measures

A comprehensive shelf of urban transport infrastructure projects with rough cost estimates recommended to be implemented in the medium and long term is indicated in the Annexure I & II respectively. The shelf of projects included schemes on augmentation of rail network, road / rail crossings – RoB / RuB, inter-city rail terminals, commercial exploitation of vantage rail stations, pedestrian facility @ railway stations, fleet augmentation, depots and terminals, bus rapid transit-ways (full-fledged), bus rapid transit ways (limited), bus lay-byes & shelters, mono-rail / LRT , elevated highways, development of freight corridors, major flyovers, mini-flyovers, widening of bridges and culverts, new link roads, widening strengthening and resurfacing of arterial, sub-arterial and collector roads, concreting of city roads, subways, escalators, footpaths, multi -level car parking and development of waterway transport. All the project locations especially within the CMA, prima facie have warrants for improvement. The shelf of projects has drawn heavily upon the various past studies and based on the recommendations of the Sub-committees. Though the list of rail transit-based schemes formed part of the shelf at the instance of the State Level Committee the same has been removed from the shelf of projects. The estimated cost of the comprehensive shelf of projects is Rs. 32,700 crores. It is proposed to be implemented over a period of 10 years.

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## 10. Articulation of Primary Road Network for Connectivity

10.1 A need has arisen to articulate a road network not only to decongest the CMA but also to effect connectivity with the industrial clusters, existing and proposed in the immediate surrounding region. This has been largely necessitated by the following:

- Under globalisation the structure of the cities is changing all over the world and the Chennai metropolis is not an exception to this phenomenon;
- Information technology has brought in global interest and there is increasing movement of capital to new opportunities for immediate and short-term financial benefits;
- The prime advantage of metropolitan cities like Chennai is precisely its concentration of activities and skills;
- Concentration today supports the technical advance which ensures mastery of the economy tomorrow;
- Sustaining the advantages of the metropolis requires rapid changes within it and also areas around;
- Employment and income generation policy plays a key role in the metropolitan planning ; and
- For holistic development, identification of planning area, planning and regulation of developments become necessary.

10.2 Chennai metropolis is expected to cross 10-million population mark by the year 2016 and will become one of the few mega cities in the world. Good road infrastructure, airport proximity, availability of good ground water etc. coupled with the government's incentives and support, a number of economic and employment generating activities have been located particularly along the Chennai-Bangalore National Highway, Chennai- Trichy National Highway and along Chennai-Mammallapuram Highway even beyond CMA. Further GoTN have identified Chennai-Manali-Ennore corridor and Chengalpattu-Sriperumbudur-Ranipet corridor as corridors to be developed into Industrial Corridors of Excellence with SEZs, IT and Industrial parks, R&D Institutions, universities along with social infrastructure like housing, health care and schooling facilities etc. The GoTN are also contemplating to define the megalopolis around CMA in the form of the Tamil Nadu State Capital Region (TNSCR) with Mammalapuram, Chengalpattu, Sriperumbudhur, Tiruvallur and Gummidipoondi as outer limits.

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10.3 Accordingly a primary connectivity road network has been proposed comprising links of national highways (NHs), state highways (SHs) and major district roads (MDRs). For the purposes of rapid connectivity and high speed the proposed network would comprise a system of roads catering to 6 or more lanes of traffic supported by a secondary system of roads catering to 4 lanes of traffic. This would strengthen and supplement the radial-cum-orbital network inherited by the Chennai metropolis. Presently most of these links are only two-lane and single-lane wide except the links of NHs which are being upgraded as six-lane roads under National Highway Development Programme (NHDP). The proposed connectivity network is indicated in the Map-1

10.4 Foreseeing that the wedge between ECR and GST road (NH45) would witness immediate pressure of urban development followed by the wedge between GST road and GWT road (NH-4) & the wedge between GWT road and GNT road (NH5), the development of the primary connectivity road network has been prioritised. Within the wedges the network development has been prioritised from the CMA to the outer rim of the region. In tandem with development of this primary connectivity road network, the debottlenecking measures within the CMA followed by the areas immediately adjoining the CMA has been given due priority. Accordingly a shelf of schemes skimmed from the comprehensive shelf of schemes has been recommended for implementation in the immediate future. The cost of the shelf of schemes is estimated as Rs.17, 400 crores. The broad timeframe for implementing these schemes has been estimated at 3 to 5 years.

10.5 A quick review of the shelf of schemes, indicate that the targeted modal share of 70% by public transport is fairly realizable provided the metro rail network is implemented in full and the road network expanded by development of elevated highways. The total person trips by motorised vehicles constituted 54.5% of all person trips made in the CMA in 2005. The target of 70% of these trips by the public transport (i.e 38.15% of all person trips by motorised vehicles) by 2026 works out to 7.9m trips / day. With the implementation of 45km of Metro rail which would carry not less than 0.4m trips / day, the MRTS together with the sub-urban network 0.8m trips / day and the MTC with the expanded fleet size of not less than 6000 and a network of BRT carrying about 7.0m trips / day, the target is fairly achievable *(even though the rail transit is*



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*expected to carry as much as 6 m trips / day).* As for the remaining person trips by motorised vehicles (i.e 30% of all person trips by motorised vehicles) works out to 3.4m trips per day by 2026. Implementation of the road network of elevated highways, the network of BRT and the series of debottlenecking measures viz. underpasses / overpasses, flyovers, etc proposed in the shelf would assist in coping with these many trips by private vehicles.

## 11. Shelf of Road Development Schemes for Immediate Implementation

11.1 Based on the above a shelf of road development schemes for immediate implementation was prepared and presented before the State Level Committee on Road Connectivity & Traffic Improvements in Chennai, Madurai and Coimbatore Cities on 18-2-2008. Based on the discussions at the meeting, the individual schemes have since been prioritised by the respective agencies and the phased implementation of the shelf of schemes with sources of funding in the next three years has been prepared and submitted to Govt. on 12-3-2008 for obtaining the approval of the State Level Committee. As desired by the Govt. in their letter dt. 7-7-2008, the same is now modified in the light of the preliminary recommendations made by the on-going CCTS and presented in Table 11.1. The agency-wise budget allocation proposed for 2008-09, 2009-10 & 2010-11 is indicated in Table 11.2.

11.2 The estimated cost of this shelf of schemes is Rs.8, 900 crores. The broad timeframe for implementing these schemes has been estimated at 3 years. The preliminary recommendations of the on-going CCTS are indicated in the maps Map 2 through Map 5, the shelf of schemes for implementation in the immediate term is indicated in the maps Map 6.1 through Map 10 and the shelf of schemes for implementation in the long-term is indicated in the map Map 11.

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| Table 11.1 Immediate Shelf of Traffic and Transportation Schemes for CMA and Surrounding Region: Phasing and Sources of Funding | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. No.** | **Project** | **Broad Cost (Rs. In Crores)** | **Phase of Implementation** | | | **Source of Funding** | **Remarks** |
| | | | **2008-09** | **2009-10** | **2010-11** | | |
| **A** | **URBAN BUS TRANSIT SYSTEM** | | | | | | |
| **A1.** | **Fleet augmentation** | | | | | | |
| | ***Metropolitan Transport Corporation*** | | | | | | |
| 1 | Replacement of 500 buses / year & augmentation of 500 buses / year | 700.00 | 350.00 | 350.00 | 350.00 | State Fund | |
| | Sub –total (A1) | 700.00 | 350.00 | 350.00 | 350.00 | | |
| **A2.** | **Depots and terminals** | | | | | | |
| | ***Metropolitan Transport Corporation*** | | | | | | |
| 1 | Construction of 26 new bus depots *(Kovalam,, Kelambakkam, Thaiyur, Semmancheri, Medavakkam, Agaramthen, Vandalur, Guduvancherry, Mudichur, Somangalam, Kundrathur, Mangadu, Noombal, Kamarajnagar, Kil Ayanambakkam, Chembarabakkam, Pudusathram, Thirunindravur, Pudur, Ayappakkam, Teachers' Colony (Kolathur), Alamathi, Padiyanallur, Karanodai, Madhavaram Milk Colony and Manali New Town)* | 212.00 | 129.00 | 141.00 | 125.00 | JNNURM | |
| 2 | *Construction of 11 new bus terminals (Broadway, Anna Square, Sholinganallur, Tambaram East, Vandalur, Mangadu, Saligramam, Chembarabakkam, Thirunindravu, Ayapakkam and Kallikuppam)* | 33.00 | | | | | |
| 3 | Renewal of existing depots and bus terminals (34) | 100.00 | | | | | |
| 4 | Machinery & equipments for the new depots | 50.00 | | | | | |
| | Sub – total (A2) | 395.00 | 129.00 | 141.00 | 125.00 | | |
| **A3** | **Other operational infrastructure such as computerisation & networking, electronic route boards, electronic ticketing system, on-line GPS for vehicle tracking, PIS and IVRS system** | 175.00 | 2.00 | 2.00 | 2.00 | JNNURM | |
| | Sub – total (A3) | 175.00 | 2.00 | 2.00 | 2.00 | | |
| **A4.** | **Bus lay-byes & Shelters** | | | | | | |
| 1 | Construction of bus lay-byes and bus shelters (500 Nos.) ***(CoC)*** | 125.00 | | | | DBOT | Since this is 100% funding by private sector, no allocation proposed |
| 2 | Bus stand improvement ***(Municipalities)*** | 2.70 | 2.70 | | | JNNURM | |
| 3 | Bus stand improvement ***(TP)*** | 0.75 | 0.75 | | | JNNURM | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 4 | Bus stand improvement ***(VP)*** | 4.90 | 4.90 | | | JNNURM | |
| | Sub -total (A4) | 133.35 | 8.35 | | | | |
| | **Total (A)** | **1403.35** | **489.35** | **493.00** | **477.00** | | |
| **B** | **DEVELOPMENT OF ROAD NETWORK** | | | | | | |
| **B1** | **Elevated highways** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | From Light House to Besant Nagar across Adyar Estuary (10 km length) and on to ECR (along existing road links) STAGE I-UPTO ADYAR ESTUARY-4km | 300.00 | 15.00 | 150.00 | 135.00 | JNNURM | |
| 2 | From Light House to Besant Nagar across Adyar Estuary (10 km length) and on to ECR (along existing road links) STAGE II- ADYAR ESTUARY TO ECR-6km | 350.00 | 17.50 | 175.00 | 157.50 | JNNURM | It is unlikely that expenditure for this can happen during 2008-09 |
| 3 | Along Arcot Road from Vadapalani upto Porur | 300.00 | 15.00 | 150.00 | 135.00 | JNNURM | With no detailed investigation and DPR it is unlikely that expenditure for this can happen |
| 4 | Along Tiruvotttriyur High Road from Tollgate to Eranavur Bridge | 250.00 | 12.50 | 125.00 | 112.50 | JNNURM | |
| | Sub -total (B1) | 1200.00 | 60.00 | 600.00 | 540.00 | | |
| **B2** | **Development of Freight Corridors** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | Elevated Highway along the banks of River Cooum from Chennai Port to Maduravoyal | 1468.00 | 40.00 | 143.00 | | State Fund | Assuming 50% of the total R&R cost of Rs.366 crores be borne by GoTN and the balance including all the civil works by NHAI, the allocation is proposed |
| | Sub -total (B2) | 1468.00 | 40.00 | 143.00 | | | |
| **B3-1** | **Major Flyovers** | | | | | | |
| ***a*** | ***Corporation of Chennai*** | | | | | | |
| 1 | At Perambur | 51.00 | 30.00 | 21.00 | | JNNURM | Included in the BE 2008-09 |
| | Sub -total (B3-1a) | 51 | 30.00 | 21.00 | | | |
| ***b*** | ***Department of Highways*** | | | | | | |
| 1 | On Anna Salai combining i) Blackers Road junction, ii) Dams Road x Thiru-Vi-Ka Road (General Paters Road) Junction and iii) Binny's Road x Pattulos Road junction | 76.20 | 1.20 | 28.00 | 35.00 | TNUDP III | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| 2 | On Annasalai combining i) Eldams Road x Theagaraya Road intersection, ii) Cenetop Road junction iii) Venkata Narayana Road x Chamiers Road intersection and iv) CIT I Main Road junction | 101.80 | 1.80 | 60.00 | 40.00 | TNUDP III | |
| 3 | On Periyar EVR Salai combining i) Nelson Manickam Road junction and ii) Anna Nagar III Avenue junction | 61.20 | 1.20 | 32.00 | 28.00 | TNUDP III | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 4 | On Periyar EVR Salai with Dr.Gurusamy Bridge | 12.00 | 1.20 | 5.40 | 5.40 | State Fund | *Recommended by on-going CCTS(Preliminary)* |
| 5 | On Periyar EVR Salai with Dr.Nair Bridge | 12.00 | 1.20 | 5.40 | 5.40 | State Fund | *Recommended by on-going CCTS(Preliminary)* |
| 6 | On Periyar EVR Salai with Raja Muthiah Road (Sydenhams Road) | 12.00 | 1.20 | 5.40 | 5.40 | State Fund | Recommended by on-going CCTS(Preliminary) |
| 7 | At the junction of Taramani Link Road and MBI road at Vijayanagaram | 60.00 | 3.00 | 30.00 | 27.00 | JNNURM | |
| 8 | Moolakadai Jn. | 25.00 | 2.50 | 11.25 | 11.25 | State Fund | *Recommended by on-going CCTS(Preliminary)* |
| 9 | Strip Flyover on IRR @ MBI Road & IRR jn. | 12.00 | 1.20 | 5.40 | 5.40 | State Fund | *Recommended by on-going CCTS(Preliminary)* |
| 10 | At the junction of Mount Poonnamallee road and Poonnamallee Kundrathur road at Poonnamallee town | 60.00 | 3.00 | 30.00 | 27.00 | JNNURM | |
| 11 | At the junction of Mount Madipakkam road and Pallavaram Thorapakkam road | 30.00 | 1.50 | 15.00 | 13.50 | JNNURM | |
| | Sub -total (B3-1b) | 462.20 | 19.00 | 227.85 | 203.35 | | |
| | Sub -total (B3-1) | 513.20 | 49.00 | 248.85 | 203.35 | | |
| **B3-2** | **Mini Flyovers** | | | | | | |
| | ***Corporation of Chennai*** | | | | | | |
| 1 | On Ambedkar College Road @ Ganesapuram | 12.00 | 12.00 | | | CoC | Internal resources of CoC.Included in the BE 2008-09 |
| 2 | Kamaraj Salai with Wallajah Road | 12.00 | 1.20 | 5.40 | 5.40 | CMDP | *Recommended by on-going CCTS(Preliminary)* |
| 3 | Kamaraj Salai with Dr.Radhakrishnan Salai | 12.00 | 1.20 | 5.40 | 5.40 | CMDP | *Recommended by on-going CCTS(Preliminary)* |
| 4 | Sterling Road with College Road | 15.00 | 1.50 | 6.25 | 6.25 | CMDP | *Recommended by on-going CCTS(Preliminary)* |
| | Sub -total (B3-2) | 51.00 | 15.90 | 17.05 | 17.05 | | |
| | Sub -total (B3) | 564.20 | 64.90 | 265.90 | 220.40 | | |
| **B4** | **Road / Rail crossings – RoB/RuB** | | | | | | |
| **a** | ***Corporation of Chennai*** | | | | | | |
| 1 | ROB on Kathivakkam - Cockrane Basin Road | 12.20 | 12.20 | | | JNNURM | Included in the BE 2008-09 |
| 2 | RUB at Villivakkam Level Crossing (LC 2) | 13.96 | 13.96 | | | JNNURM | Included in the BE 2008-09 |
| 3 | RUB at Monegar Choultry Road | 10.55 | 10.55 | | | JNNURM | Included in the BE 2008-09 |
| 4 | ROB at Rengarajapuram Level Crossing | 15.74 | 15.74 | | | JNNURM | Included in the BE 2008-09 |
| 5 | RUB at Jones Road Level Crossing | 4.65 | 4.65 | | | JNNURM | Included in the BE 2008-09 |
| | Sub –total (B4-a) | 57.10 | 57.10 | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| **b** | ***Department of Highways*** | | | | | | |
| 1 | RUB in lieu of LC.No. 4 near Korattur | 15.00 | 1.50 | 10.50 | 3.00 | RWP | |
| 2 | Limited RuB @ L.C.No. 26 near Vaisnav College @ Chromepet | 5.00 | 0.50 | 3.50 | 1.00 | RWP | |
| 3 | ROB in lieu of L.C.No. 40 (On Madambakkam, Adhanur and Padappai road) | 35.00 | 3.50 | 24.50 | 7.00 | RWP | |
| 4 | ROB in lieu of L.C.No. 47 between Guduvanchery and Singaperumalkoil | 55.00 | 5.50 | 38.50 | 11.00 | RWP | |
| 5 | ROB in lieu of L.C.No. 16 on MKT Road @ Minjur Station. | 15.00 | 1.50 | 10.50 | 3.00 | RWP | |
| 6 | Widening of RoB to dual 4 lane width in Km. 12/2-13/2 of Inner Ring Road | 15.00 | 1.50 | 10.50 | 3.00 | RWP | |
| 7 | RoB in lieu of L.C.No. 3 (Near Thiruvottriyur Railway Station) | 22.05 | 11.55 | 6.00 | 4.50 | TNUDP III | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| 8 | ROB in lieu of L.C.No. 5 between Villivakkam and Ambattur Railway Stations | 29.65 | 19.55 | 5.60 | 4.50 | TNUDP III | |
| 9 | ROB in lieu of L.C.No. 32 & 33 (Near Stardard Motors) | 41.50 | 16.50 | 14.00 | 11.00 | TNUDP III | |
| 10 | Construction of R.U.B in lieu of L.C.4 in between Thiruvotriyur - Ennore. (Near Thruvotriyur Railway Station) | 31.15 | 21.55 | 5.60 | 4.00 | TNUDP III | |
| 11 | Construction of R.O.B. in lieu of LC 14 in between Tirunindravur - Tiruvallur. (Near Sevvaiet Railway Station) | 21.80 | 13.00 | 4.80 | 4.00 | TNUDP III | |
| 12 | Construction of R.U.B. in lieu of L.C.6 in between Tiruvotriyur - Ennore. (Near Wimco Railway station) | 16.50 | 5.50 | 6.00 | 5.00 | TNUDP III | |
| | Sub –total (B4-b) | 302.65 | 101.65 | 140.00 | 61.00 | | |
| | Sub –total (B4) | 359.75 | 158.75 | 140.00 | 61.00 | | |
| **B5** | **Widening of Bridges and Culverts** | | | | | | |
| | Widening of major bridges across rivers | | | | | | |
| ***a*** | ***Corporation of Chennai*** | | | | | | |
| 1 | Additional 2 lanes to the Bridge on Sardar Patel Road across B Canal | 1.00 | 1.00 | | | CoC | Internal resources of CoC. |
| 2 | High Level Bridge in view of causeway across Adyar River at Alandur Road | 6.03 | 6.03 | | | JNNURM | Included in the BE 2008-09 |
| | Sub -total (B5-a) | 7.03 | 7.03 | | | | |
| ***b*** | ***Department of Highways*** | | | | | | |
| | **(Inside CMA)** | | | | | | |
| 1 | Construction of bridge across Coovam river connecting NH-4 with Nolambur | 5.00 | 1.00 | 4.00 | | State Fund | |
| 2 | Construction of minor bridge at Km. 6/4 of Inner Ring Road including forming the approach road | 4.00 | 0.80 | 3.20 | | State Fund | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 3 | Construction of High Level Bridge at Km. 0/2 of Sri Devi Karumari Amman Koil Street. | 5.00 | 1.00 | 4.00 | | State Fund | |
| 4 | Construction of High Level Bridge at Km. 14/8 of Vanagaram-Ambattur Road | 3.00 | 0.60 | 2.40 | | State Fund | |
| 5 | Construction of Bridge at Km. 10/2 of Korattur-Thinnanur-Periyapalayam road | 2.00 | 0.40 | 1.60 | | State Fund | |
| 6 | Construction of a bridge at Km. 20/6 & 8 of Chennai-Kodambakkam - Sriperumbudur Road | 5.00 | 1.00 | 4.00 | | State Fund | |
| 7 | Construction of bridge at Km. 13/6, 15/8 7 other narrow CD works (11/4-20/0) of Mount - Poonamallee - Avadi road. | 4.00 | 0.80 | 3.20 | | State Fund | |
| 8 | Construction of a bridge across Adyar river near Nandampakkam | 5.00 | 1.00 | 4.00 | | State Fund | |
| 9 | Construction of additional 3 lane bridge on upstream side of the approved new bridge across Coovum river in EVR Salai at Aminjikarai | 5.00 | 1.00 | 4.00 | | State Fund | |
| | **(Outside CMA)** | | | | | | |
| 10 | Construction of High Level Bridge at Km.62/2 of Singaperumal Koil - Sriperumbudur - Thiruvallur - Redhills Road. | 1.00 | 0.20 | 0.80 | | State Fund | |
| 11 | Construction of Bridge at Km.44/2 of Thirumazhisai - Sathyavedu Road. | 3.00 | 0.60 | 2.40 | | State Fund | |
| 12 | Construction of Bridge at Km. 0/6 of Korattur-Thinnanur-Periyapalayam road to Pakkam road | 1.00 | 0.20 | 0.80 | | State Fund | |
| 13 | Construction of Bridge at Km. 4/6 of Melanur-Meyyur road | 18.00 | 3.60 | 14.40 | | State Fund | |
| 14 | Construction of a Bridge at Km. 4/10 of Palur - Singaperumal Koil Road | 2.50 | 0.50 | 2.00 | | State Fund | |
| 15 | Construction of a bridge at Km. 4/6 of NH4 to Irungattukottai to CKS road (via) Katrambakkam | 1.00 | 0.20 | 0.80 | | State Fund | |
| 16 | Reconstruction of bridge at Km. 27/10 of Singaperumalkoil - Sriperumbudur - Thiruvallur - Redhills Road. | 2.50 | 0.50 | 2.00 | | State Fund | |
| 17 | Reconstruction of bridge at Km. 15/8 of Tambaram-Mudichur-Sriperumpudur Road | 1.00 | 0.20 | 0.80 | | State Fund | |
| | Sub -total (B5-b) | 68.00 | 13.60 | 54.40 | | | |
| | Sub -total (B5) | 75.03 | 20.63 | 54.40 | | | |
| **B6** | **New Links** | | | | | | |
| ***a*** | ***Corporation of Chennai*** | | | | | | |
| 1 | New Link Road connecting Greenways Road to Northern end of Thiru-vi-ka Bridge at Durga bai Deshmukh Road inside Music College | 3.00 | 3.00 | | | CoC | Internal resources of CoC. |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| | Sub -total (B6-a) | 3.00 | 3.00 | | | | |
| ***b*** | ***Department of Highways*** | | | | | | |
| 1 | Outer Ring Road from NH45 to TPP Road : 0/00 – 62/0 (62 km) | 900.00 | | | | PPP | |
| | Sub -total (B6-b) | 900.00 | | | | | |
| | Sub -total (B6) | 903.00 | 3.00 | | | | |
| **B7** | **Widening, Strengthening and Resurfacing of arterial, sub-arterial and Collector Roads** | | | | | | |
| B7I | Widening Single lane to two lane | | | | | | |
| | ***Department of Highways*** | | | | | | |
| | **Wiithin CMA** | | | | | | |
| 1 | Widening and Strengthening<br>a) Kundrathur joining T.T. Road(Km. 0/0-4/2)<br>b)Thiruneermalai – Tirumudivakkam road, Km. 26/4-29/4<br>c)Pazhathandalam road 0/0-2/8 (two lane) | 18.00 | 1.00 | 12.50 | 4.50 | TNUDP III | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| 2 | Widening and Strengthening K.S. Road to Kolapakkam road, Km. 0/0-1/6 (two lane) | 4.00 | 0.80 | 3.20 | | TNUDP III | |
| 3 | Widening and Strengthening of Mangadupattu – Moulivakkam road Km. 0/0-3/8 (two lane) | 6.10 | 0.20 | 4.40 | 1.50 | TNUDP III | |
| 4 | Widening and Strengthening Somangalam road Km. 0/0-4/0 (two lane) | 7.00 | 0.20 | 5.30 | 1.50 | TNUDP III | |
| 5 | Widening and Strengthening of Ariyalur – Vilangadu Pakkam road, Km. 0/0-6/4 (two lane) | 9.53 | 5.44 | 4.00 | | TNUDP III | |
| 6 | Widening and Strengthening of Minjur – Kattur – Thirupalaivanam Road Km. 0/0-17/4 (two lane) | 31.78 | 11.23 | 20.55 | | TNUDP III | |
| 7 | Widening and Strengthening Minjur Karanodai road (Km. 0/0-16/4) (two lane) | 55.09 | 16.69 | 20.90 | 17.50 | TNUDP III | |
| 8 | Widening and Strengthening of Madharvedu road, Km. 0/0-1/6 (two lane) | 3.35 | 3.25 | | | TNUDP III | |
| 9 | Widening and Strengthening of Koladi road, km. 0/0-7/0 (two lane) | 19.00 | 9.00 | 9.00 | | TNUDP III | |
| 10 | Widening and Strengthening of Vadaperumbakkam – Chettimedu Nairu Road (Km. 6/2 – 19/0) (two lane) | 21.50 | 0.50 | 16.00 | 5.00 | TNUDP III | |
| 11 | Widening and Strengthening of<br>a) Melmanambedu Road (Km. 0/0-1/420)<br>b) Vellavedu – Chithur Kadu Road (Km. 0/0-4/2)<br>c) Parivakkam - Pallikuppam road<br>( Km 0/0-2/8) (two lane) | 16.00 | 1.00 | 12.50 | 2.50 | TNUDP III | |

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|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 12 | Widening to Single lane to two lane and Strengthening of T.P.P. road to Sadayankuppam Road Km 0/0-2/910 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 13 | Widening to Single lane to two lane and Strengthening of Ambathur-Madanakuppam-Mettupalayam Road to Puthagaram road,Km 0/0-2/135 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 14 | Widening to Single lane to two lane and Strengthening of A.V.P. road to Manali-Mathur road (via) Kosappur,Km0/0-3/4 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 15 | Widening to Single lane to two lane and Strengthening of Guruvoyal Road, Km0/0-4/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 16 | Widening to Single lane to two lane and Strengthening of Guruvoyal - Sothupakkam Road ,Km0/0-3/2 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 17 | Widening to Single lane to two lane and Strengthening of Putlur road ,Km0/0-3/8 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 18 | Widening to Single lane to two lane and Strengthening of Kommukambedu road,Km 0/0-3/6 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 19 | Widening to Single lane to two lane and Strengthening of Poondi Ramarajankandigai road,0/0-4/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 20 | Widening to Single lane to two lane and Strengthening of Poondi Ramarajankandigai road,4/0-8/4 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 21 | Widening to Single lane to two lane and Strengthening of Poondi A.K.M. road to Vellerithangal road,Km 0/0-3/1 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 22 | Widening single lane to two lane and Strengthening of (a) Chennai – Mamallapuram road to Thalambur – Harijoin colonly 0/0-2/0 and (b) Thalambur – HC Road to Karanai – HC road 2/0-3/050. | 3.00 | 1.20 | 1.80 | | State Fund | |
| 23 | Widening and Strengthening Of single lane to double lane to M.P. road to Manapakkam km.0/0-2/5 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 24 | Widening and Strengthening Of single lane to double lane to M.P. road to Manapakkam km.2/5-5/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 25 | Widening to Single lane to two lane and Strengthening of GNT road to T.P.P road,(via)Gangaiyadi kuppam, Agaram Colony ,Mettupalayam(including union road),Km0/0-10/6 | 11.00 | 4.40 | 6.60 | | State Fund | |
| 26 | Widening to Single lane to two lane and Strengthening of GNT road to Neduvarampakam -Andarkuppam road ,Km 0/0-1/830,0/0-1/600 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 27 | Widening to Single lane to two lane and Strengthening of C.P. road to Andarkuppam road ,Km0/0-1/0 | 1.00 | 0.40 | 0.60 | | State Fund | |

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|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 28 | Widening to Single lane to two lane and Strengthening of GNT road to New Erumaivettipalayam road,Km 0/0-4/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 29 | Widening to Single lane to two lane and Strengthening of GNT road to New Erumaivettipalayam road,Km4/0-7/2 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 30 | Widening single lane to two lane and Strengthening of Medavakkam – Mambakkam – Sembakkam road Km. 8/0-12/5. | 5.00 | 2.00 | 3.00 | | State Fund | |
| 31 | Widening single lane to two lane and Strengthening of Medavakkam – Mambakkam – Sembakkam road Km. 12/5-17/0 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 32 | Widening single lane to two lane and Strengthening of Medavakkam – Mambakkam – Sembakkam road Km. 17/0-21/5 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 33 | Widening single lane to two lane and Strengthening of Medavakkam – Mambakkam – Sembakkam road Km.21/5-26/8 | 5.50 | 2.20 | 3.30 | | State Fund | |
| 34 | Widening single lane to two lane and Strengthening of Chinnapanicheri road Km. 0/0-1/4 | 1.50 | 0.60 | 0.90 | | State Fund | |
| 35 | Widening single lane to two lane and Strengthening of Nandhambakkam road Km. 0/0-1/350 | 1.50 | 0.60 | 0.90 | | State Fund | |
| 36 | Strengthening and Providing Hard shoulder to Vanagaram Ambattur Road km 0/0-2/0 | 3.00 | 3.00 | | | State Fund | |
| 37 | Strengthening and Providing Hard shoulder to Vanagaram Ambattur Road km1/2-3/2 | 3.00 | 3.00 | | | State Fund | |
| 38 | Strengthening and Providing Hard shoulder to Vanagaram Ambattur Road km 3/2-6/2 | 3.00 | 3.00 | | | State Fund | |
| 39 | Resurfacing Thirumazhisai-Sathyavedu road Km. 20/0-22/0 including improvements to Service Road under R.O.B. in Tiruvallur | 4.00 | 4.00 | | | State Fund | |
| | Sub -total (B7I) | 298.85 | 100.11 | 165.05 | 32.50 | | |
| **II** | **Widening 2- lane to 4- /6- lane** | | | | | | |
| ***a*** | ***Corporation of Chennai*** | | | | | | |
| 1 | Improving Bus Route Roads in City (200 km.)**(60km & 40km)** | 200.00 | **25.00** | 25.00 | 25.00 | CoC | Internal resources of CoC. |
| 2 | Ayanavaram Road and Raju (N) Street (connecting New Avadi Road and Medavakkam Tank Road) (1.4 k.m.) (4 lane) | 4.50 | 4.50 | | | CoC | |
| 3 | Dr. Radhakrishnan Salai (Service Road on both sides of flyovers at TTK. Road junctions) | 15.00 | 15.00 | | | CoC | |
| | Sub -total (B7II-a) | 219.50 | 44.50 | 25.00 | 25.00 | | |
| | **Multi-lane Widening Within CMA** | | | | | | |
| b | ***Department of Highways*** | | | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 1 | Wideningto two lane to Four lane and Strengthening of G.N.T. Road ,km 22/6-25/7(Old NH) | 6.50 | 2.60 | 3.90 | | State Fund | |
| 2 | Widening to two lane to Four lane and Strengthening of Tiruvottiyur -Ponneri-Panchertty road,km13/5-16/0 | 10.00 | 4.00 | 6.00 | | State Fund | |
| 3 | Widening to two lane to Four lane and Strengthening of Tiruvottiyur -Ponneri-Panchertty road,km16/0-19/0 | 7.00 | 2.80 | 4.20 | | State Fund | |
| 4 | Widening to two lane to Four lane and Strengthening of Tiruvottiyur -Ponneri-Panchertty road,km19/0--22/0 | 7.00 | 2.80 | 4.20 | | State Fund | |
| 5 | Widening to two lane to Four lane and Strengthening of Tiruvottiyur -Ponneri-Panchertty road,km22/0--25/0 | 7.00 | 2.80 | 4.20 | | State Fund | |
| 6 | Widening to two lane to Four lane and Strengthening of Tiruvottiyur -Ponneri-Panchertty road,km25/0-27/8 | 10.00 | 4.00 | 6.00 | | State Fund | |
| 7 | Widening to two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 6/5-10/0 | 7.00 | 2.80 | 4.20 | | State Fund | |
| 8 | Widening to two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 10/0-14/0 | 8.00 | 3.20 | 4.80 | | State Fund | |
| 9 | Widening to two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 14/0-18/0 | 8.00 | 3.20 | 4.80 | | State Fund | |
| 10 | Widening two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 18/0-22/0 | 8.00 | 3.20 | 4.80 | | State Fund | |
| 11 | Widening two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 22/0-25/2 | 6.50 | 2.60 | 3.90 | | State Fund | |
| 12 | Widening two lane to Four lane of Korattur-Thinnanur-Periyapalayam road,Km 25/2-28/2 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 13 | Widening Four lane to six laning of Mount-Poonamallee road,Km 1/3-3/5 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 14 | Widening Four lane to six laning of Mount-Poonamallee road,Km 3/5-7/0 | 9.00 | 3.60 | 5.40 | | State Fund | |
| 15 | Widening Four lane to six laning of Mount-Poonamallee road,Km 7/0-10/8 | 10.00 | 4.00 | 6.00 | | State Fund | |
| 16 | Widening two lane to Four lane of Poonamallee-Kuntrathur road km 2/2-4/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 17 | Widening two lane to Four lane of Poonamallee-Kuntrathur road km 4/0-5/4 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 18 | Widening and Strengthening of Marmalong Bridge - Irumbuliyur Road km 8/2 - 12/4 | 43.00 | 7.00 | 28.25 | 7.75 | State Fund | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 19 | Widening and Strengthening of Taramani link road km. 0/0-3/650 (six lane) | 23.45 | 15.54 | 7.91 | | TNUDP III | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| | Sub -total (B7II-b) | 188.45 | 71.34 | 109.36 | 7.75 | | |
| | Sub -total (B7II) | 407.95 | 115.84 | 134.36 | 32.75 | | |
| B7III | **(Outside CMA)** | | | | | | |
| | **TWO LANE WIDENING** | | | | | | |
| 1 | Widening to Single lane to two lane and Strengthening of Melanur-Meyyur road,Km 0/0-4/0 | 4.50 | 1.80 | 2.70 | | State Fund | |
| 2 | Widening to Single lane to two lane and Strengthening of Melanur-Meyyur road ,Km 4/0-7/0 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 3 | Widening to Single lane to two lane and Strengthening of Melanur-Meyyur road,Km 7/0-10/0 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 4 | Widening to Single lane to two lane and Strengthening of Medur-Gummidipoondy,Km 0/0-5/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 5 | Widening to Single lane to two lane and Strengthening of Medur-Gummidipoondy,Km 5/0-10/0 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 6 | Widening to Single lane to two lane and Strengthening of Medur-Gummidipoondy,Km 10/0-15/0 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 7 | Widening to Single lane to two lane and Strengthening of Medur-Gummidipoondy,Km 15/0-17/4 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 8 | Widening single lane to two lane and improvements to Walajabad - Sunguvarchattiram - Keelachery Road Km.24/0-30/9. | 5.00 | 2.00 | 3.00 | | State Fund | |
| 9 | Widening Single lane to two lane and Strengthening of of Palur - Singaperumal Koil Road km 0/0-3/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 10 | Widening Single lane to two lane and Strengthening of Palur - Singaperumal Koil Road km 3/0-6/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 11 | Widening Single lane to two lane and Strengthening of Palur - Singaperumal Koil Road km 6/0-9/2 | 3.50 | 1.40 | 2.10 | | State Fund | |
| 12 | Widening Single lane to two lane and Strengthening of Elichur-Palur Road km 0/0-4/0 | 4.50 | 1.80 | 2.70 | | State Fund | |
| 13 | Widening Single lane to two lane and Strengthening of Elichur-Palur Road km 4/0-8/6 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 14 | Widening single lane to two lane and strengthening of Thandalam - Perambakkam Road Km.10/0-12/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 15 | Widening single lane to two lane of Mavalurkuppam - Nayapakkam Road km 0/0-2/0 | 2.00 | 0.80 | 1.20 | | State Fund | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 16 | Widening single lane to two lane of Mavalurkuppam - Nayapakkam Road km 2/0-4/4 | 2.50 | 1.00 | 1.50 | | State Fund | |
| 17 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km. 0/0-4/0. | 4.00 | 1.60 | 2.40 | | State Fund | |
| 18 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km. 4/0-7/0. | 3.00 | 1.20 | 1.80 | | State Fund | |
| 19 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km. 7/0-10/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 20 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km. 10/0-13/0. | 3.00 | 1.20 | 1.80 | | State Fund | |
| 21 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km.13/0-16/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 22 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km.16/0-19/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 23 | Widening single lane to two lane and Strengthening of Chengalpattu – Tiruporur road Km.19/0-21/8 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 24 | Widening single lane to two lane and Strengthening Singaperumal Koil to Reddikuppam Road Km. 0/0-4/5. | 4.50 | 1.80 | 2.70 | | State Fund | |
| 25 | Widening single lane to two lane and Strengthening Singaperumal Koil to Reddikuppam Road Km. 4/5-9/0 | 4.50 | 1.80 | 2.70 | | State Fund | |
| 26 | Widening single lane to two lane and Strengthening Singaperumal Koil to Reddikuppam Road Km. 9/0-13/2 | 4.50 | 1.80 | 2.70 | | State Fund | |
| 27 | Widening single lane to two lane and Strengthening of Kayarambedu–Kalivanthapattu km– 1/100-4/0. | 3.00 | 1.20 | 1.80 | | State Fund | |
| 28 | Widening single lane to two lane and Strengthening of Kayarambedu–Kalivanthapattu km–4/0-8/450 | 4.50 | 1.80 | 2.70 | | State Fund | |
| 29 | Widening single lane to two lane and Strengthening of Mambakkam - Tiruporur Road Km. 14/4-20/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 30 | Widening single lane to two lane and Strengthening of GST road to Karuneelam (via) Malrosapuram road Km. 0/0-5/8. | 6.00 | 2.40 | 3.60 | | State Fund | |
| 31 | Widening from single lane to two lane and strengthening of Nemili - mannur Road Km. 0/0-3/0 | 3.00 | 1.20 | 1.80 | | State Fund | |
| 32 | Widening from single lane to two lane and strengthening of Nemili - mannur Road Km. 3/0-5/4 | 2.50 | 1.00 | 1.50 | | State Fund | |
| 33 | Widening single lane to two lane and Strengthening of Echur-Tiruporur road Km 0/0-5/0 | 5.00 | 2.00 | 3.00 | | State Fund | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 34 | Widening single lane to two lane and Strengthening of Echur-Tiruporur road Km 5/0-10/0 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 35 | Widening single lane to two lane and Strengthening of Manamathy-Mullipakkam Km 0/0-4/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 36 | Widening single lane to two lane and Strengthening of Manamathy-Mullipakkam Km 4/0-8/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 37 | Widening single lane to two lane and Strengthening of Guduvanchery-Kottamedu Km 5/4-10/0 | 5.00 | 2.00 | 3.00 | | State Fund | |
| 38 | Widening single lane to two lane and Strengthening of Guduvanchery-Kottamedu Km 10/0-14/0 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 39 | Widening single lane to two lane and Strengthening of Guduvanchery-Kottamedu Km 14/0-17/5 | 4.00 | 1.60 | 2.40 | | State Fund | |
| 40 | Widening single lane to two lane and Strengthening of Kottamedu-Manamathy Km 0/0-4/5 | 4.50 | 1.80 | 2.70 | | State Fund | |
| | Sub -total (B7III) | 156.00 | 62.40 | 93.60 | | | |
| B7IV | **MULTI LANE WIDENING(OUTSIDE CMA)** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | Widening two lane to Four lane of S.S.T.R road km 25/925-30/0 | 8.00 | 3.20 | 4.80 | | State Fund | |
| 2 | Widening two lane to Four lane of S.S.T.R road km 30/0-33/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 3 | Widening two lane to Four lane of S.S.T.R road km 33/0-36/0 | 7.00 | 2.80 | 4.20 | | State Fund | |
| 4 | Widening two lane to Four lane of S.S.T.R road km 36/0-40/300 | 10.00 | 4.00 | 6.00 | | State Fund | |
| 5 | Widening two lane to Four lane of S.S.T.R road km 40/300-43/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 6 | Widening two lane to Four lane of Walajabad-sunkuvarchatiram-Keelachery road km 0/0-3/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 7 | Widening two lane to Four lane of Walajabad-sunkuvarchatiram-Keelachery road km 3/0-6/0 | 6.50 | 2.60 | 3.90 | | State Fund | |
| 8 | Widening two lane to Four lane of Walajabad-sunkuvarchatiram-Keelachery road km 6/0-9/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 9 | Widening two lane to Four lane of Walajabad-sunkuvarchatiram-Keelachery road km 9/0-12/0 | 6.00 | 2.40 | 3.60 | | State Fund | |
| 10 | Widening two lane to Four lane of Walajabad-sunkuvarchatiram-Keelachery road km 12/0-18/4 | 12.00 | 4.80 | 7.20 | | State Fund | |
| | Sub -total (B7IV) | 73.50 | 29.40 | 44.10 | | | |
| | Sub -total (B7) | 936.30 | 307.75 | 437.11 | 65.25 | | |
| **B8** | **Concreting of City Roads** | | | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| | ***Corporation of Chennai*** | | | | | | |
| 1 | Concreting of Major Roads Ibrahmiji St., Cemetry Road, East Kalmandapam Road, T.V.K.Link Road, Satya Murthy Main Road, Muthu St., Murthingar St., Stephenson Road, AA Scheme Road, Dr.Ambedkar College Road, (M.K.B.Nagar West Avenue Road, Central Avenue Road | 50.00 | 10.00 | 20.00 | 20.00 | CoC | Internal resources of CoC. |
| | Sub -total (B8) | 50.00 | 10.00 | 20.00 | 20.00 | | |
| **B9** | **Utility Duct and Storm Water Drains along Major Roads and improvements to canals maintained by Corporation of Chennai City Roads (500 k.m.)** | | | | | | |
| | ***Corporation of Chennai*** | | | | | | |
| 1 | Storm Water Drains (100km, 116km &120 km) | 386.00 | 116.00 | 130.00 | 140.00 | JNNURM | |
| 2 | Improvements to Canals maintained by Corporation of Chennai (8km, 10km & 10km) | 113.00 | 33.00 | 40.00 | 40.00 | JNNURM | |
| | Sub -total (B9) | 499.00 | 149.00 | 170.00 | 180.00 | | |
| **B10** | **Road works including bridges/culverts / concreting / black-topping in Municipalities, Town Panchayats and Village Panchayats in outer -CMA** | | | | | | |
| 1 | Road works including bridges/culverts in 16 Municipalities in outer CMA | | | | | | |
| | *(Ambattur : 933 works : 270.7 km @ Rs.151.17cr;Avadi : 506 works : 475.68 km @ Rs.79.24cr; Kathivakkam : 142 works : 37.77 km @ Rs.5.12cr; Madhavaram : 1288 works : 328.40 km @ Rs.66.05cr; Thiruvottiyur : 689 works : 482 km @ Rs.105.20cr; Alandur : 848 works : 187.19 km @ Rs.39.71cr; Pallavapuram : 1396 works : 374 km @ Rs.83.74cr; Tambaram : 187 works : 178.25 km @ Rs.43.87cr; Anakaputhur - 153 works - 56.57 km @ Rs.8.26cr; Pammal : 626 works : 121.6 km @ Rs.15.80cr; Puzhuthivakkam : 398 works : 120.94 km @ Rs.22.92cr; Madhuravoyal - 321 works - 102.72 km @ Rs.15.95cr; Poonamallee : 256 works : 105.01 km @ Rs.10.39cr; Thiruverkadu : 150 works : 91 km @ Rs.11.93cr; Valasaravakkam : 115 works : 82.22 km @ Rs.12.54cr; and Manali : 90 works : 26.50 km @ Rs.3.26cr)* | 675.15 | 250.00 | 250.00 | 250.00 | JNNURM | |
| 2 | Concreting of roads in the above 16 Municipalities in outer CMA *(939 works : 170.52 km)* | 22.69 | | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 3 | Black-topping of roads in the above 16 Municipalities in outer CMA *(1637 works : 438.45 km)* | 38.61 | | | | | |
| 4 | Road works(including bridges/culverts / concreting / black-topping) in Town Panchayats in outer CMA | 61.30 | | | | | |
| 5 | Road works(including bridges/culverts / concreting / black-topping) in Village Panchayats in outer CMA | 145.10 | | | | | |
| | Sub -total (B10) | 942.85 | 250.00 | 250.00 | 250.00 | | |
| **B11** | **Structures** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | Construction of PCC retaining wall in Thirumazhisai-Sathiyavedu road | 2.20 | 2.20 | | | State Fund | |
| 2 | Construction of PCC retaining wall in Thirumazhisai-Sathiyavedu road | 2.00 | 2.00 | | | State Fund | |
| 3 | Providing revetment in Thirumazhisai-Sathiyavedu road | 2.40 | 2.40 | | | State Fund | |
| 4 | Providing revetment in Thirumazhisai-Sathiyavedu road | 2.40 | 2.40 | | | State Fund | |
| 5 | Providing platform on Both sides and centre median to Thirumangalam-Mogappair road | 4.00 | 4.00 | | | State Fund | |
| 6 | Providing crash barrier in Km. 20/0-23/0 of Thirumazhisai-Sathyaveud road | 4.00 | 4.00 | | | State Fund | |
| | Sub -total (B11) | 17.00 | 17.00 | | | | |
| **B12** | **Land Acquisition** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | Anna Salai from km 8/5 - 8/8 Jones road Junction to Todhunter nagar and E.B. office | 1.00 | 1.00 | | | State Fund | |
| 2 | Inner ring road to Provide free left at km 3/2 (towards K.K. Nagar) and at Km 3/4 (nearAshok pillar using post office land) | 1.00 | 1.00 | | | State Fund | |
| 3 | E,V.R Salai from kk 5/4 - 6/2 (Aminjikarai) and km 7/6 - 9/0 (Maduvin karai bridge to Arumbakkam) | 5.00 | 5.00 | | | State Fund | |
| 4 | Widening the Basin bridge on GNT road. | 10.00 | 10.00 | | | State Fund | |
| 5 | Widening to dual four laning GST road@ Meenambakkam. | 15.00 | 15.00 | | | State Fund | |
| 6 | Widening to dual three laning Mount - Poonamallee road KM 0/0-10/8 | 10.00 | 10.00 | | | State Fund | |
| 7 | Widening to dual three laning Marmalong bridge-Irumbuliyur Road km 12/2-21/2 | 20.00 | 20.00 | | | State Fund | |
| 8 | Widening two lane to Four lane Vanagaram Ambattur Road km 0/0--6/2 | 30.00 | 30.00 | | | State Fund | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 9 | Widening two lane to Four lane Kodambakkam-Sriperumpudur Road km 5/0-28/4 | 25.00 | 25.00 | | | State Fund | |
| 10 | Widening two lane to Four lane to Pallavaram-Kundrathur road km.1/0-7/6 | 25.00 | 25.00 | | | State Fund | |
| 11 | Forming Bye pass to Tiruvallur town km0/0-4/2 | 11.00 | 11.00 | | | State Fund | |
| 12 | Forming Bye pass to Kundrathur | 10.00 | 10.00 | | | State Fund | |
| | Sub -total (B12) | 163.00 | 163.00 | | | | |
| | **Total (B)** | 7178.13 | 1244.03 | 2080.41 | 1336.65 | | |
| **C** | **PEDESTRIAN FACILITIES** | | | | | | |
| **C1** | **Subways** | | | | | | |
| | ***Department of Highways*** | | | | | | |
| 1 | **Along Anna Salai** | | | | | | |
| | a) GP Road Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | b) Nandanam Chamiers Road junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | c) Todhunter Nagar | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | d) Saidapet Bazaar Road Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | e) Little Mount A.G. Church | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | f) TNPL Office | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | a) M.K.N. Road Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | g) Kathipara junction (four legs) | 20.00 | 2 | 14 | 4 | JNNURM | |
| | h) Military Hospital | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | i) Chromepet | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | j)at TVS on on Anna Salai | 2.15 | 0.95 | 1.2 | | TNUDP III | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| | k) at Anna Salai Theagaraya Road Junction | 2.25 | 1.05 | 1.2 | | TNUDP III | |
| 2 | **Along Periyar EVR Salai** | | | | | | |
| | a) Evening Bazar Road Junction | 2.15 | 0.95 | 1.2 | | TNUDP III | |
| | b) opp.Egmore Railway Station | 4.50 | 0.45 | 3.60 | 0.45 | State Fund | |
| | c) Dasaprakash | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | d) Pachaiyappas College | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | e)Taylors road | 2.00 | 0.20 | 1.60 | 0.20 | State Fund | |
| | f) Aminijikari Market | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | g) Anna Arch | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | h) N.S.K. Nagar junction (Arumbakkam) | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | i) Vaishnava College | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | | | | | | | Though it is a World Bank project, the expenditure has to be incurred upfront by GoTN and hence the allocations proposed accordingly |
| | **Along Jawaharlal Nehru Salai (IRR)** | | | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 3 | a) Cipet Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | b) Mallady junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | c) Ekkattuthangal | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | d) 14th Avenue Junction (Kasi Theatre) | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | e) Ashok Pillar | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | f) P.T. Rajan Salai | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | g) Vadapalani Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | h) Periyar Padai | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | i) Vinayagapuram Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | j) C.M.B.T. | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | k) Kaliamman Koil Street junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | l) Thirumangalam (Anna Nagar 2nd Avenue) | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | m) Muggapair road junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | n) Thirumangalam Police Station Junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | o) Padi junction | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| 4 | **Along other major Roads** | | | | | | |
| | a) Thiruvanmiyur ECR – Marundeeswarar Koil Point | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | b) Kodambakkam Sriperumbudur road, at Valasaravakkam | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | c) Kodambakkam Sriperumbudur road, at Porur | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | d) Mount Poonamallee road at Ramachandra Medical College | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | e) GNT Road Opp. Puzhal Central Prison | 4.00 | 0.4 | 2.8 | 0.8 | JNNURM | |
| | Sub -total (C1-a)) | 173.05 | 19.60 | 120.80 | 32.65 | | |
| | ***Corporation of Chennai*** | | | | | | |
| 1 | Vadapalani Bus Terminus on Arcot Road | 2.00 | 0.20 | 1.60 | 0.20 | CoC | Internal resources of CoC. |
| 2 | Jawaharlal Nehru Salai and Arcot road junction | 2.00 | 0.20 | 1.60 | 0.20 | CoC | Internal resources of CoC. |
| 3 | Meenakshi College on Arcot Road | 1.80 | 0.18 | 1.44 | 0.18 | CoC | Internal resources of CoC. |
| 4 | Near MTC Bus Terminus at T Nagar | 1.80 | 0.18 | 1.44 | 0.18 | CoC | Internal resources of CoC. |
| 5 | NSC Bose road and Prakasam Salai | 6.00 | 0.60 | 4.80 | 0.60 | CoC | Internal resources of CoC. |
| 6 | Rattan Bazaar road. | 2.00 | 0.20 | 1.60 | 0.20 | CoC | Internal resources of CoC. |
| 7 | Purasawalkam High road and Perambur Barracks Road | 6.00 | 0.60 | 4.80 | 0.60 | CoC | Internal resources of CoC. |
| 8 | Mint Junction. | 5.00 | 0.50 | 4.00 | 0.50 | CoC | Internal resources of CoC. |
| 9 | South Usman road- Doraisamy Road Junction | 1.80 | 0.18 | 1.44 | 0.18 | CoC | Internal resources of CoC. |
| 10 | Near Queen Marys College on Kamarajar Salai | 2.00 | 0.20 | 1.60 | 0.20 | CoC | Internal resources of CoC. |
| | Sub -total (C1-b) | 30.40 | 3.04 | 24.32 | 3.04 | | |
| | Sub -total (C1) | 203.45 | 22.64 | 145.12 | 35.69 | | |
| **C2** | **Escalators** | | | | | | |
| | ***Corporation of Chennai*** | | | | | | |

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| S. No. | Project | Broad Cost (Rs. In Crores) | Phase of Implementation | | | Source of Funding | Remarks |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | | |
| 1 | Providing escalators at 10 footover bridges/ subway locations (4Nos., 4Nos & 2Nos.) | 50.00 | | | | DBOT | Since this is 100% funding by private sector, no allocation proposed |
| | Sub -total (C2) | 50.00 | | | | | |
| | **Total (C)** | 253.45 | 22.64 | 145.12 | 35.69 | | |
| **D** | **Multi Level Car Parking** | | | | | | |
| | ***Corporation of Chennai*** | | | | | | |
| 1 | Broadway Bus Stand | 15.00 | | | | DBOT | Since this is 100% funding by private sector, no allocation proposed |
| 2 | Wallace Garden Ist Street off Greams lane | 15.00 | | | | DBOT | |
| | Sub -total (D) | 30.00 | | | | | |
| **E** | **Traffic Management and Enforcement** | | | | | | |
| | ***CCTP*** | | | | | | |
| 1 | Traffic signals at 82 locations | 8.00 | 4.00 | 4.00 | | State Fund | |
| 2 | Introduction of Area Traffic Control System (ATCS) | 25.00 | 5.00 | 20.00 | | State Fund | |
| | **Total (E)** | 33.00 | 9.00 | 24.00 | | | |
| | **Grand Total** | 8897.93 | 1765.02 | 2742.53 | 1849.34 | | |

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**Table 11.2 Proposed Agencywise Budget Allocation for 2008-09, 2009-10 & 2010-11**

| S.No | Name of the Agency | 2008-09 | 2009-10 | 2010-11 | Remarks |
|---|---|---|---|---|---|
| 1 | ***MTC*** | | | | |
| | State Fund | 350.00 | 350.00 | 350.00 | |
| | JNNURM | 131.00 | 143.00 | 127.00 | |
| | State Share of JNNURM | 19.65 | 28.00 | 32.75 | 35% by GoI; 15% by GoTN & Interest comp. by GoTN for remaining 50% funding through Fin. Inst. |
| | **Budget Allocation** | **369.65** | **378.00** | **382.75** | |
| 2 | ***CoC*** | | | | |
| | Internal Resources | 76.54 | 69.32 | 48.04 | |
| | JNNURM | 244.46 | 185.67 | 180.00 | |
| | State Share of JNNURM | 36.67 | 40.07 | 21.51 | |
| | DBOT | 0.00 | 0.00 | 0.00 | |
| | **Budget Allocation** | **36.67** | **40.07** | **21.51** | |
| 3 | ***DoH*** | | | | |
| | State Fund | 452.35 | 643.95 | 69.65 | |
| | TNUDP III | 163.25 | 281.21 | 172.10 | |
| | JNNURM | 67.50 | 675.00 | 607.50 | |
| | State Share of JNNURM | 10.13 | 104.63 | 128.25 | |
| | Railway works Programme | 14.00 | 98.00 | 28.00 | The cost is only for the approaches; Railways reimburses 50% of the cost of approaches - LA cost after completion of the approaches. Hence the reimbursement for the works of 2008-09 can flow only in 2010-11 |
| | PPP | 0.00 | 0.00 | 0.00 | |
| | **Budget Allocation** | **639.73** | **1127.79** | **398.00** | |
| 4 | ***CCTP*** | | | | |
| | State Fund | 9.00 | 24.00 | | |
| | **Budget Allocation** | **9.00** | **24.00** | | |
| 5 | ***CMA*** | | | | |
| | JNNURM | 258.35 | 250.00 | 250.00 | |
| | State Share of JNNURM | 38.75 | 50.42 | 62.92 | |
| | **Budget Allocation** | **38.75** | **50.42** | **62.92** | |
| | **Grand Total** | **1094** | **1620** | **865** | |

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**Annexure I**

**List of Medium-Term Transportation Schemes**

| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| **A.** | **URBAN RAIL TRANSIT SYSTEM** | |
| **A1** | **Augmentation of rail network** | |
| | ***Southern Railways*** | |
| 1 | MRTS extension from Velachery (about 5km) | 600 |
| 2 | 3rd rail line from Beach to Korukkupet (4.1km) | 55.23 |
| 3 | 3rd rail line from Korukkupet to Athipattu (18km) | 70.56 |
| 4 | Central- Egmore rail link (2.6km) | 80 |
| | Sub –total (A1) | 805.79 |
| **A2** | **Road / Rail crossings – RoB/RuB** | |
| | ***Department of Highways*** | |
| 1 | RoB in lieu of existing Vyasarpadi underpass in GNT Road | 85 |
| 2 | ROB in lieu of L.C.No. 7 (Near Annanur Railway Station) | 16 |
| 3 | Pattabiram Military siding (1042 – 1043) (located in NH 205 under the control of NHAI) | 15 |
| 4 | RUB in lieu of L.C. No. 9 (Near Hindu College Railway Station) | 15 |
| 5 | RUB in lieu of L.C.No. 16 near St. Thomas Mount Railway Station. (Karunigar Street) | 8 |
| 6 | RUB in lieu of L.C.No. 19 (Near Meenambakkam) | 10 |
| 7 | ROB in lieu of L.C.No. 36 (Near Urappakkam) | 30 |
| | Sub –total (A2) | 179 |
| **A3** | **Pedestrian facility @ Railway Stations** | |
| | ***Southern Railways*** | |
| **1** | Escalators in sub-urban stations (30) | 75 |
| | Sub –total (A3) | 75 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| | **Total (A)** | **1059.79** |
| **B** | **URBAN BUS TRANSIT SYSTEM** | |
| | **Bus Rapid Transit ways (Limited)** | |
| | ***Metropolitan Transport Corporation*** | |
| 1 | Rajiv Gandhi Salai (OMR) (20km) | 100 |
| 2 | Taramani Link Road (5km) | 25 |
| 3 | MBI Road (15km) | 75 |
| 4 | Pallavaram Thorapakkam Road (15km) | 75 |
| 5 | Sardar Patel Road (10km) | 50 |
| 6 | NSK Salai (Arcot Road) – KS Road (20km) | 100 |
| 7 | Mt. Poonamallee Road (15km) | 75 |
| | **Total (B)** | **500** |
| **C** | **DEVELOPMENT OF ROAD NETWORK** | |
| **C1** | **Elevated highways** | |
| a | ***Corporation of Chennai*** | |
| 1 | Along City Waterways (52.6km along existing links and 46.7km new construction) | 2300 |
| | Sub -total (C1-a) | 2300 |
| ***b*** | ***Department of Highways*** | |
| 1 | Along Rajaji Salai from Parrys Corner to Tollgate at Tiruvottriyur | 350 |
| | Sub -total (C1-b) | 350 |
| | Sub -total (C1) | 2650 |
| **C2** | **Development of Freight Corridors** | |
| | ***CMDA*** | |
| 1 | Truck terminal on GST Road @ Maraimalai Nagar | 75 |
| 2 | Truck terminal @ the intersection of ORR & 200’ wide arterial road at Karunakkarancheri | 500 |
| 3 | Truck parking at Manali | 75 |
| | Sub-total (C2) | 650 |
| **C3-1** | **Major Flyovers** | |
| | ***Corporation of Chennai*** | |
| 1 | At Madya Kailash Junction | 150 |
| 2 | At Thiruvanmiyur West Avenue x L.B. Road Junction | 30 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| 3 | At the Junction of Medavakkam Tank Road, Anderson Road & Konnur High Road | 30 |
| 4 | At Anna Nagar Roundana | 30 |
| 5 | At the junction of New Avadi Road x Kilpauk Garden Road | 15 |
| 7 | At Pasumpon Muthuramalingam Salai and Turnbulls Road intersection | 12.5 |
| 8 | At North Usman Road and Dr.M.G.R. Salai (Kodambakkam High Road intersection | 9.72 |
| 9 | At Gomathy Narayana Salai and Thirumalai Road intersection | 16.5 |
| 10 | At Usman Road and Duraisamy Salai intersection | 19.8 |
| 11 | At the junction of Anna Salai and Sardar Patel Road | 22 |
| | Sub -total (C3-1) | 335.52 |
| **C3-2** | ***Mini Flyovers*** | |
| | ***Corporation of Chennai*** | |
| 1 | At the Intersection of Old Jail Road and Basin Bridge Road at Mint Junction | 20 |
| | Sub -total (C3-2) | 20 |
| | Sub -total (C3) | 355.52 |
| **C4** | **Widening of Bridges and Culverts** | |
| | Widening of major bridges across rivers | |
| 1 | Construction of a bridge across Coovam river @ km 0/4-0/6 of M.P.Road and Paruthipattu | 6 |
| 2 | Widening Basin Bridge on GNT Road | 20 |
| 3 | Widening the Bridges at Km. 13/9,15/10 Of Inner Ring Road | 3 |
| 4 | Construction of a bridge across Aranaiyar river @ km | 20 |
| 5 | Tiruvallur -Uthukotai road(Tirumazhisai-Satyavedu Road) | 20 |
| 6 | Construction of bridges across Coovum River from NH-4 (Koyambedu to Thiruverkadu (4 Nos.)) | 20 |
| | Sub -total (C4) | 89 |
| **C5** | **New Links** | |
| ***a*** | ***Corporation of Chennai*** | |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| 1 | Link Road Between Thiru-vi-ka Bridge and Kotturpuram Bridge along Southern Bank of Adyar River and extending upto Maraimalai Adigal Bridge (4.4 k.m.) | 50 |
| 2 | Link Road Between Madya Kailash and Muthuramalinga Deval Salai along West Cana Bank Road (1.8 k.m.) (elevated) | 40 |
| 3 | Link Road from Kotturpuram - Gandhi Mandapam Road and West Canal Bank Road (Utilising the approach Road to Brila Planetarium and existing road behind CLRI) (1.16 k.m.) | 25 |
| 4 | Link Road along Ponniamman Koil Street connecting Gandhi Mandapam Road and West Canal Bank Road (1 k.m.) | 30 |
| 5 | Link Road between New Avadi Road and Medavakkam Tank Road | 5 |
| | Sub -total (C5-a) | 150 |
| ***b*** | ***Department of Highways*** | |
| 1 | Tambaram Eastern Bypass (from MBI Road to GST Road) (9km) | 45 |
| 2 | Puzhal to IRR (4 km) | 20 |
| 3 | Link Road between Rajiv Gandhi Salai (OMR) and East Coast Road (Pallavan Kudiruppu to Prathana Theatre) (3km) | 30 |
| 4 | Link Road between Rajiv Gandhi Salai (OMR) and East Coast Road at Palavakkam | 30 |
| 6 | Outer Ring Road from ECR to NH 45 (New alignment) | 160 |
| 7 | Outer Ring Road from Seemapuram to Ennore Port | 95 |
| 8 | Missing link of Outer Ring Road from MBI Road to Rajiv Gandhi Salai (OMR throught Jaladampettai 4km) | 60 |
| 9 | Ambattur Estate to ORR (via Paruthipattu) (15km) | 150 |
| 10 | Bypass roads to Thirumazhisai & Thiruvalluvar Towns (12km) | 180 |
| 11 | Mudichur to Darkas Loop Road (via) TNHP Colony (3.2 km) | 5 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| 12 | Tambaram Sanitorium to ORR - 5.5 Km. (four lane) | 55 |
| 13 | Velachery to Kelambakkam link road - 8.6 Km. four lane) | 90 |
| | Sub -total (C5-b) | 920 |
| | Sub -total (C5) | 1070 |
| **C6** | **Widening, Strengthening and Resurfacing of arterial, sub- arterial and Collector Roads** | |
| **I** | **Widening 2- lane to 4- /6- lane** | |
| ***a*** | ***Corporation of Chennai*** | |
| 1 | In City (100 km.) | 100 |
| 2 | Nesapakkam Road | 14 |
| 3 | Choolaimedu High Road (4 lane) | 10 |
| 4 | Redhills Road from Srinivasa Nagar to CTH Road | 15 |
| | Sub -total (C6I-a) | 139 |
| ***b*** | ***Department of Highways*** | |
| 1 | Widening Madipakkam to Velachery km. 0/0 3/1 (four lane) | 15 |
| 2 | Widening and Strengthening of Vanagaram-Ambattur road , km 0/0-6/2 (six lane) | 100 |
| 3 | Widening MBI road Km. 12/2-21/2 (Medavakkam to Tambaram) (six lane) | 35 |
| 4 | Widening ECR (from Thiruvanmiyur to Toll Plaza) Km. 11/8-31/0 (six lane) | 100 |
| 5 | Kodambakkam-Sriperumpudur road, km5/0-37/400 (four lane) | 150 |
| 6 | Widening Taramani Perungudi road Km. 0/0-2/010 (four lane) | 6 |
| 7 | Widening Tambaram - Somangalam road Km 0/0-9/6 (four lane) | 30 |
| 8 | Widening GST road to Thiruneermalai ,4km (four lane) | 15 |
| 9 | Widening from Anna salai(Alandur) to Mount station (MKN road 3 Km.( four lane) | 20 |
| 10 | Widening to dual four lane with service lanes of Inner Ring Road km 13/2-16/2 | 15 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| | Sub -total (C6I-b) | 486 |
| | Sub -total (C6I) | 625 |
| II) | **Industrial clusters outside CMA** | |
| | ***Department of Highways*** | |
| **a** | **Widening single lane to two lane** | |
| 1 | Widening Pallur-Sogandy road km. 0/0-23/8 (two lane) | 25 |
| 2 | Widening vadakupattu-Guruvanmedu-palur Singaperumal koil road 0/0-7/8 (two lane) | 10 |
| 3 | Widening Umayal paranchery-Kanchivakkam-Sepapananchery0/0-9/2 (two lane) | 10 |
| | Sub -total (C6II-a) | 45 |
| **b** | **Widening to four lane** | |
| 1 | Widening Kosathalaiyar Bridge-Puthur road -32.5km (four lane) | 120 |
| 2 | Widening Tirukalukundram-Mamallapuram Road-13.2km (four lane) | 50 |
| 3 | Widening Walajabad-Sunguvarchathiram-keelacherry -Tiruvallur -43.km (four lane) 18/4-43/0 | 163.5 |
| 4 | Sadras-Chengalpattu-Kanchipuram-Thiruvallur-Arakkonam road ,km 0/0-107/400 (four lane) | 450 |
| 5 | Linking NH-4 with Arakkonan Naval Air station through Thandalam-Perambakkam road,koovam-Thakkolam -Arakkonam road(40 km) | 200 |
| 6 | Puduvoyal-Periyapalayam road ,km 0/0-13/8 (four lane) | 50 |
| 7 | Tiruvallur-Uthukottai road(Four lane)-23km (four lane) | 100 |
| | Sub -total (C6II-b) | 1133.5 |
| | Sub -total (C6) | 1803.5 |
| C7 | Concreting of City Roads | |
| ***a*** | ***Corporation of Chennai*** | |
| | Concreting of City Roads (20 k.m.) | 95 |
| | Phase-I | |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| 1 | (Cochrane Basin Road, Tondiarpet High Road, Konnur High Road, Anna Nagar 3rd and 4th Avenue, M.G.R. Salai, Ashok Nagar 4th Avenue, Ashok Pillar Road, Anna Main Road and Velacherry main Road | |
| 2 | Concreting of City Roads | |
| | Phase-II | |
| | Kamaraj Salai & Santhome High Road (4.8 km.), Nungambakkam High Road (1.4 k.m.), Dr.Radhakrishnan Road and Cathedral Road (3.3 k.m.), College Road and Haddows Road (1.5 k.m.), Rajaji Salai (2.5 k.m.), Lattice Bridge Road (3.5 k.m.), Venkatnarayana Road & North Usman Road (3.00 k.m.) ,Muthuramalinga Devar Salai (Chamiers Road & Greenways Road (3.00 k.m.), Purasawalkam High Road (1.5 k.m.), Millers Road, Gangatheeswarar Koil Street and Alagappa Road (1.5k.m.) | 118 |
| | Sub -total (C7-a) | 213 |
| ***b*** | ***Department of Highways*** | |
| 1 | Concreting of Major Roads | |
| | GNT Road (Walltax Road) 0/8-3/2 (2.5km) | 10 |
| | Sub -total (C7-b) | |
| 2 | Sub -total (C7) | 223 |
| **C8** | **Improvements with white topping** | |
| | **and landscaping at Rs.3.00 Crores** | |
| | **each** | |
| 1 | Adayar Junction, Thiruvanmiyur Junction, TTK Road, and DR.Radhakrishnan Salai, Salai Junction, Turnbulls Road junction, Canal Bank Road and Mandavelli Junction, Parrys Corner and Rajaji Salai Junction, Kellys Junction, Purasa-Walkam High Road and Millers Road Junction, Kilpauk Garden Road and Anna Nagar Ist Avenue at Chinathamani, Anna Nagar Roundana, Konnur High Road & Medavakkam Tank Road | 25 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| 2 | Ibrahimji Street, Cemetry Road, East Kal mandapam Road, T.V.K. Link Road, SatyaMurthy Main Road, Muthu Street, Murthingar Street, Stephenson Road, AA Scheme Road, Dr. Ambedkar College Road, (M.K.B. Nagar West Avenue Road, Central Avenue Road Elliaya (M) Street - (8.50 k.m). | 25 |
| | Sub -total (C8) | 50 |
| **C9** | **Utility Duct and Storm Water Drains along Major Roads and improvements to canals maintained by Corporation of Chennai** | |
| | Utility Duct and Storm Water Drains along Major Roads | |
| 1 | Inner Ring Road - 70 Km. | 90 |
| | Sub -total (C9) | 90 |
| | **Total (C)** | **6981.02** |
| **D** | **PEDESTRIAN FACILITIES** | |
| **D1** | **Subways** | |
| ***a*** | ***Corporation of Chennai*** | |
| | Along other major roads at the following | |
| | locations at Rs.3.00 crores each | |
| 1 | a. Nungambakkam High Road at IOC Junction | |
| | b. Dr. Radhakrishnan Salai at QMC | |
| | c. Sardar Patel Road at Anna University | |
| | d. Sardar Patel Road at CLRI | |
| | e. Kamarajar Salai at PWD Complex | |
| | f. Kamarajar Salai near Light House | |
| | g. College Road at Meteorological Office | |
| | h. Thiruvanmiyur ECR - Marundeeswarar Koi Point | |
| | i. NSK Salai - Vadapalani Depot | |
| | j. NSK Salai - Meenakshi College | |
| | l. Greenways Road at Satya Studio | |
| | m. Thiruvanmiyur - LB Road Junction | |
| | o. Old Jail Road Opp. to Stanley Hospital | 39 |
| | Sub -total (D1-a) | 39 |

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| S. No. | Project | Broad Cost Rs. in crores |
|---|---|---|
| ***b*** | ***Department of Highways*** | |
| | **Along Periyar EVR Salai** | |
| 1 | a) Additional subway opposite to Central Station | 4 |
| | Sub -total (D1-b) | 4 |
| | Sub -total (D1) | 43 |
| **D2** | **Foot Over Bridges** | |
| | ***Department of Highways*** | |
| 1 | 50 Nos. @ Rs. 10.00 lakhs each | 5 |
| | Sub -total (D2) | 5 |
| **D3** | **Footpaths** | |
| | ***Corporation of Chennai*** | |
| 1 | Along Arcot Salai | 10 |
| | Sub -total (D3) | 10 |
| | **Total (D)** | **58** |
| **E** | **Multi Level Car Parking** | |
| | ***Corporation of Chennai*** | |
| 1 | Panagal Park , T. Nagar | 16 |
| 3 | MUC Ground | 30 |
| 4 | Government Estate Anna Salai | 12 |
| 5 | Adayar (Gandhi Nagar Bus Stand) | 7 |
| 6 | T. Nagar Bus Terminal | 17 |
| | **Total (E)** | **82** |
| | **Grand Total** | **8680.81** |

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Annexure – II

**THE LIST OF LONG – TERM URBAN TRANSPORTATION SCHEMES**

| Sl. No. | Project | Broad Cost (Rs. in crores) |
|---|---|---|
| **A** | **URBAN BUS TRANSIT SYSTEM** | |
| **A1** | **Bus Rapid Transit-ways (Full-fledged)** | |
| 1 | GNT Road (20km) | 200.00 |
| 2 | CTH Road (15km) | 150.00 |
| 3 | Chennai Bypass (20km) | 200.00 |
| 4 | Outer Ring Road (ORR) (62km) | 620.00 |
| | Sub-total (A1) | 1170.00 |
| **A2** | **Inter-City Outstation Bus Terminals** | |
| 1 | Terminals at the 4 intersections of ORR with NHs | 800.00 |
| | Sub-total (A2) | 800.00 |
| | **Total (A)** | **1970.00** |
| **B** | **MONO-RAIL / LRT** | |
| 1 | Dams Road jn.-Royapettah-Mylapore-Adyar-Guindy (Halda jn.) | 480.00 |
| 2 | Kalangaraivilakkam RTS Staion- Anna flyover-Kilpauk- Perambur | 1000.00 |
| | **Total (B)** | **1480.00** |
| **C** | **DEVELOPMENT OF FREIGHT CORRIDORS** | |

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| Sl. No. | Project | Broad Cost (Rs. in crores) |
|---|---|---|
| ***a*** | ***Department of Highways*** | |
| 1 | Road connecting Ennore Port (northern gate) and NH5 @ Thatchur | 100.68 |
| 2 | Road connecting Ennore Port (northern gate) and TPP Road @ Vallur | 142.98 |
| 3 | Developing an exclusive road along Beach connecting Ennore Port and Chennai Port for container traffic | 1500.00 |
| | Sub-total (C-a) | 1743.66 |
| ***b*** | ***CMDA*** | |
| 1 | Truck terminal @ the intersection of ORR & GST Road | 750.00 |
| 2 | Truck terminal @ the intersection of ORR & GWT Road | 750.00 |
| 3 | Truck terminal @ the intersection of ORR & GNT Road | 750.00 |
| | Sub-total (C-b) | 2250.00 |
| | **Total (C)** | **3993.66** |
| **D** | **DEVELOPMENT OF ROAD NETWORK** | |
| **D1** | **Elevated highways** | |
| ***a*** | ***Corporation of Chennai*** | |
| 1 | Along Kamarajar Salai | 480.00 |
| 2 | Along Rajiv Gandhi Salai | 900.00 |
| 3 | Along Arcot Road | 360.00 |

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| Sl. No. | Project | Broad Cost (Rs. in crores) |
|---|---|---|
| 4 | Aminjikarai to Sterling Road | 225.00 |
| 5 | Along Kathivakkam High Road | 600.00 |
| | Sub-total (D1-a) | 2565.00 |
| b | ***Department of Highways*** | |
| 1 | Along Thiruvottiyur High Road from Monroe statue to Manali | 600.00 |
| 2 | Along NH45 from Kathipara to Tambaram | 1350.00 |
| 3 | Along Kodambakkam Sriperumbudur road upto Porur | 360.00 |
| | Sub-total (D1-b) | 2310.00 |
| | Sub-total (D1) | 4875.00 |
| **D2** | **Grade - Separators** | |
| | ***Department of Highways*** | |
| 1 | @ Sothupakkam Road x Chennai bypass | 30.00 |
| 2 | @ NH4 x Thirumazhisai Road | 30.00 |
| 3 | @ Vadakarai – Madhavaram Road x Naravarikuppan Town Panchayat limits. | 30.00 |
| | Sub-total (D2) | 90.00 |
| **D3** | **Road/Rail crossings - RoB/RuB** | |
| | ***Department of Highways*** | |
| | A new RoB between Wimco Nagar and Ennore railway stations | 25.00 |

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| Sl. No. | Project | Broad Cost (Rs. in crores) |
|---|---|---|
| | Sub-total (D3) | 25.00 |
| **D4** | **Widening Strengthening and resurfacing of arterial, sub-arterial and collector roads** | |
| | ***Department of Highways*** | |
| 1 | CTH Road from Avadi to Thiruvallur as a 6-lane expressway | 200.00 |
| 2 | Approach road from Rajiv Gandhi Salai to Nookampalayam Road from 10m to 30.5m | 90.00 |
| 3 | Navalur-Thalambur-Siruseri Medavakkam Road | 200.00 |
| 4 | Existing 50' approach road connecting the Global Hospitals to the Medavakkam-Sholinganallur Road (Perumbakkam) | 7.00 |
| 5 | Strengthening and improving the network of radial roads of 250km length *(improved during 1998-2000)* | 1000.00 |
| 6 | Widening Rajiv Gandhi Salai from Siruseri to Mamallapuram -30km (six lane) | 500.00 |
| 7 | ECR from Toll Plaza to Mamallapuram as 6-lane expressway-20km | 300.00 |
| 8 | Pallavaram-Thoraipakkam road as 6-lane expressway | 150.00 |
| | Sub-total (D4) | 2447.00 |
| **D5** | **New Link Roads** | |
| | ***Department of Highways*** | |
| 1 | Providing an east-west link connecting the RoB near Ambattur Rly.and IRR near Villivakkam station, north of the Central-Arakkonam Rail line | 150.00 |

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| Sl. No. | Project | Broad Cost (Rs. in crores) |
|---|---|---|
| 2 | Link connecting Sadayankuppam Road to Ennore Expressway | 75.00 |
| 3 | An approach road on Alamathi Road to Red Hills – Tiruvallur main road (via) Avadi – Alamathi (Fourb lane) – 14km | 100.00 |
| 4 | Link connecting Vanagaram – Ambattur Road and Porur through Chettiaragaram (NH 4 – M.P. Road via Chettiaragaram | 25.00 |
| 5 | Link connecting Ambattur-Red Hills Road and IRR by widening and strengthening the Water Canal Road from Madanamkuppam | 25.00 |
| | Sub-total (D5) | 652.00 |
| | **Total (D)** | **8089.00** |
| **E** | **PEDESTRIAN FACILITIES** | |
| | **Escalators** | |
| 1 | @ 20 FoB / Sub-way locations | 50.00 |
| | **Total (E)** | **50.00** |
| **F** | **DEVELOPMENT OF WATERWAY TRANSPORT** | |
| 1 | Developing the waterways in CMA as inland transport corridors | * |
| 2 | Exploring the operation of hovercraft along the seacoast | * |
| | **Total (F)** | * |
| | **Grand Total** | **15582.66** |

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**LIST OF ROADS REQUIRING ADVANCE ACTION TO ACQUIRE LAND TO MAINTAIN THE STREET ALIGNMENT PRESCRIBED IN THE SECOND MASTER PLAN**

*(Within 10 years, the land frozen as street alignment shall be made available for the road widening purpose either by compulsory acquisition or by operating Transfer of Development Rights (TDR) tool.)*

| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| *A* | ***ROADS OWNED BY CoC*** | | | |
| 1 | M.S.Koil Street,* Suriyanarayana Road * | Ebrahim Sahib Street | City Limits | 30.5 |
| 2 | Thambu St (Royapuram) | East Kalmandapam Road | Sheik Mastry St. | 10.0 |
| 3 | Kathivakkam High Road * | Cochrane Basin Road | City Limits | 30.5 |
| 4 | Moolakkadai-Thondiarpet Road | G.N.T. Road | B'canal | 27.0 |
| 5 | Kodungaiyur – Chinna sekkadu Road (New Link) | Moolakkadai-Thondiarpet Road | City Limits | 18.0 |
| 6 | Erukkancherry High Road (GNT Road) | Basin Bridge Road | City Limits | 27.0 |
| 7 | Madhavaram High Road | Melpatti Ponnappa Street | GNT Road | 24.0 |
| 8 | Paper Mills Road | Siruvallur Road Junction at Perambur High Road | City Limits | 18.0 |
| 9 | Konnur High Road | Medavakkam Tank Road | Its junction with New Avadi Road | 30.5 |
| 10 | C.T.H. Road | New Avadi Road | Jawaharlal Nehru Salai (IRR) (City Limits) | 30.5 |
| 11 | New Avadi Road | Kilpauk Water works | Its junction with Konnur High Road | 30.5 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 12 | New Link Road * | New Avadi Road | Medavakkam Tank Road | 24.0 |
| 13 | New Avadi Road | Periyar EVR Salai | Kilpauk Water works | 18.0 |
| 14 | Kilpauk Garden Road | Taylors Road | Anna Nagar 1st Main Road | 18.0 |
| 15 | Thiru Narayana Guru Road (Hunters Road & Choolai High Road) | Perambur Barracks Road | Sydenhams Road (Rajamuthiah Road) | 24.0 |
| 16 | Periyar EVR Salai | Mc.Nichols Road | City Limits | 30.5 |
| 17 | Nelson Manickam Road | Periyar EVR Salai | Tank Bund Road | 18.0 |
| 18 | Tank Bund Road | Nelson Manickam Road (junction of Sterling Road) | Valluvar Kottam | 18.0 |
| 19 | Village Road (Valluvar Kottam Road) | Kodambakkam High Road | Nungambakkam High Road | 27.0 |
| 20 | Uthamar Gandhi Salai (Nungambakkam High Road) | Anna Salai | Sterling Road | 27.0 |
| 21 | Greams Road * | Anna Salai | Pantheon Road | 18.0 |
| 22 | Ethiraj Salai (Commander-in-Chief Road) | Pantheon Road | Cooum River | 18.0 |
| 23 | Dr.Radhakrishnan Salai (Cathedral Road) * | Anna Salai | Music Academy | 30.5 |
| 24 | Eldams Road * | Anna Salai | TTK Road | 18.0 |
| 25 | TTK Road | Chamiers Road Junction | Alwarpet Junction | 18.0 |
| 26 | Pasumpon Muthu Ramalinga Thevar Road (Greenways Road) | Durgabai Deshmuk Road | MRTS alignment | 30.5 |
| 27 | Sardar Patel Road | Anna Salai | Madya Kailash (I.T. Expressway) | 30.5 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 28 | Dr.Muthulakshmi Salai (L.B.Road) | M.G. Road | City Limits | 30.5 |
| 29 | West Avenue Road | L.B. Road | East Coast Road (MTC terminus) | 24.0 |
| 30 | East Coast Road | West Avenue Road (MTC Terminus) | City Limits | 30.5 |
| 31 | Taramani Road | Vijayanagar Junction | L.B. Road Junction | 45.0 |
| 32 | Perungudi Station Road (New link) | Taramani Road | Perungudi Station | 18.0 |
| 33 | Velachery Road | Vijayanagar Junction | City Limits | 45.0 |
| 34 | Velachery Byepass Road | Velachery Road Junction | Vijayanagar Junction | 45.0 |
| 35 | Velachery Road * | Sardar Patel Road | Byepass Junction | 45.0 |
| 36 | Nandambakkam – Nesapakkam Road (Lake View Road and its extension Kanu Nagar Main Road) | Anna Road Junction near CMWSSB Plant | Adayar River (City Limits) | 18.0 |
| 37 | Ramapuram – Neasppakkam Road (Kamarajar Salai) | Nandambakkam – Nesapakkam Road | City Limits | 18.0 |
| 38 | Vanniar Street | Rajamannar Salai | Arcot Road | 18.0 |
| 39 | Arcot Road | Railway line | City limit | 30.5 |
| 40 | Nesapakkam Road | Arcot Road | Reddy Street | 24.0 |
| 41 | Nesapakkam Road | Reddy Street | CMWSSB Sewage Farm (southern end) | 24.0 |
| 42 | Nesapakkam Road | CMWSSB Sewage Farm (southern end) | Jawaharlal Nehru Salai (IRR) | 27.0 |
| ***B*** | ***ROAD OWNED BY DoH*** | | | |
| 1 | Ennore Expressway | City Limits | Kathivakkam High Road junction near Ennore creek | 45.0 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 2 | Thiruvottiyur High Road | City Limits | Manali Expressway | 27.0 |
| 3 | Manali Expressway | TPP Road | Ennore Expressway | 61.0 |
| 4 | Vallur-Edayanchavadi Road | Edayanchavadi – Athipattu Road | TPP Road | 18.0 |
| 5 | TPP Road | Kamaraj Salai junction (near Organic Chemicals) | CMA Limits | 30.5 |
| 6 | Kattur Road | TPP Road | CMA Limits | 30.5 |
| 7 | Kathivakkam High Road – Basin Road - Manali Road | City Limits | Kamaraj Salai junction (near Organic Chemicals) | 30.5 |
| 8 | Kodungaiyur – Chinnasekkadu Road (New Link) | City Limits | Kamaraj Salai | 18.0 |
| 9 | Vichoor – Vilangadupakkam Road | Nayaru – Vichoor Road | Vadaperumbakkam - Perungavur Road | 18.0 |
| 10 | Kadapakkam - Vichoor – Nayaru Road | TPP Road | Nayaru Junction | 18.0 |
| 11 | Karanodai –Nayaru Road | GNT Road | Nayaru Junction | 18.0 |
| 12 | Vadaperumbakkam – Perungavur – Nayaru Road | Madhavaram - Red Hills Road | Nayaru Junction | 18.0 |
| 13 | Sholavaram –Budur -Thirunilai Road | GNT Road | Nayaru – Vichoor Road | 18.0 |
| 14 | Redhills - Budur Road | GNT Road | Sholavaram - Thirunilai Road | 18.0 |
| 15 | Karanodai Palaya Erumeivettipalayam Road | GNT Road | Palaya Erumai vettipalayam | 18.0 |
| 16 | GNT Road (through Bypass Road) | City Limits | CMA Limits | 45.0 |
| 17 | Madhavaram-Red Hills Road | GNT Road at Moolakadai | Red Hills Bypass Road | 18.0 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 18 | Madhavaram High Road | City Limits | GNT Road at Moolakadai | 18.0 |
| 19 | Sembium – Red Hills Road (Extension of Paper Mills Road) | City Limits | GNT Road | 18.0 |
| 20 | NH Bypass Road | GWT Road | GNT Road | 61.0 |
| 21 | Ambattur Red Hills Road | CTH Road | GNT Road | 24.0 |
| 22 | CTH Road | City Limits (Jawaharlal Nehru Salai) (IRR) | CMA Limits | 45.0 |
| 23 | Avadi-Morai Road | CTH Road | CMA Limits | 18.0 |
| 24 | Vellanur-Pammadukulam Road | Avadi-Morai Road | ORR | 18.0 |
| 25 | Pandeswaram - Keelakondaiyur Road | Avadi _ Morai Road | Thiruninravur – Periyapalayam Road | 18.0 |
| 26 | Morai -Kadavur Road | Morai junction | Kadavur junction | 18.0 |
| 27 | Thandarai – Palavedu Road | CTH Road | Thiruninravur-Periyapalayam Road | 18.0 |
| 28 | Thiruninravur Periyapalayam Road | CTH Road | CMA Limits | 18.0 |
| 29 | Korattur - Thiruninravur Road | Poonamallee - Thirumazhisai - Thiruvallur Road | CTH Road | 18.0 |
| 30 | Poonamallee - Thirumazhisai - Thiruvallur Road | GWT Road | CMA Limits | 18.0 |
| 31 | Kuthambakkam - Nemam Road | GWT Road | Poonamallee - Thirumazhisai - Thiruvallur Road | 18.0 |
| 32 | Poonamallee – Pattabiram Road | Poonamallee Bypass Road | CTH Road | 18.0 |
| 33 | Poonamallee – Avadi Road | Poonamallee Bypass Road | CTH Road | 18.0 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 34 | Proposed East-west arterial Road | Chennai Bypass Road at Ambattur Estate | ORR | 61.0 |
| 35 | Vanagaram – Ambattur Road | GWT Road | Arterial Road at Athipattu | 18.0 |
| 36 | GWT Road (through Bypass Road) | City Limits | CMA Limits | 45.0 |
| 37 | Poonamallee High Road | Mangadu Road junction | Poonamallee Bypass road junction | 30.5 |
| 38 | Mount Poonamallee Road | Kathipara | western boundary of St.Thomas Mt.Contonment | 18.0 |
| | | western boundary of St.Thomas Mt.Contonment | Porur jn. | 27.0 |
| | | Porur jn. | CMA Limits | 30.5 |
| 39 | Mangadu Road | Mount Poonamallee Road | Porur - Kunrathur Road | 18.0 |
| 40 | Mangadu-Moulivakkam Road | Mangadu Road | Porur - Kunrathur Road | 18.0 |
| 41 | Porur – Kunrathur Road | Porur Junction | CMA Limits | 30.5 |
| 42 | Arcot Road | City limits | Porur Junction | 30.5 |
| 43 | Maduravoyal - Porur Road | GWT Road | Arcot Road | 18.0 |
| 44 | Ramapuram – Valasarawakkam Road | Mount-Poonamallee Road at Manapakkam | Arcot Road @ Valasarawakkam | 18.0 |
| 45 | Anna Salai, Kuppusamy St, Naidu St, Bharathi Salai, Kamaraj Salai | City Limits | Arcot Road (near ARS Garden) | 18.0 |
| 46 | Nandambakkam Nesapakkam Road | Mount Poonamallee Road | City Limits | 18.0 |
| 47 | GST Road | City Limits | CMA Limits | 45.0 |

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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 48 | Pallavaram – Kundrathur Road | GST Road | Porur - Kunrathur Road | 18.0 |
| 49 | Pammal – Polichalur Road | Pallavaram – Anakaputhur Road | Polichalur | 18.0 |
| 50 | Pallavaram – Thiruneermalai – Thirumudivakkam Road | GST Road | ORR | 18.0 |
| 51 | Thirumudivakkam – Kunrathur Road | Pallavaram – Thirumudivakkam Road | Porur - Kunrathur Road | 18.0 |
| 52 | Tambaram – Thiruneermalai Road | Tambaram - Naduveerapattu Road | Thiruneermalai Road | 18.0 |
| 53 | Tambaram – Naduveerapattu Road | GST Road | Poonthandalam Road | 18.0 |
| 54 | Poonthandalam Road | Kundrathur Sriperumbudur Road | Naduveerapattu | 18.0 |
| 55 | Mudichur Road | GST Road | Vandalur – Padappai Road at Mannivakkam | 18.0 |
| 56 | Mudichur – Manimangalam Road | Mudichur Road | CMA Limits | 18.0 |
| 57 | Vandalur – Padappai Road | GST Road | CMA Limits | 18.0 |
| 58 | Kelambakkam Road | GST Road | CMA Limits | 30.5 |
| 59 | Tambaram Bypass Road (New Link) | GST Road | MBI Road | 45.0 |
| 60 | MBI Road | GST Road | Tambaram Bypass junction | 30.5 |
| 61 | MBI Road | Tambaram Bypass Junction | City Limits | 45.0 |
| 62 | Mount-Madipakkam Road | GST Road | MBI Road at Medavakkam | 18.0 |

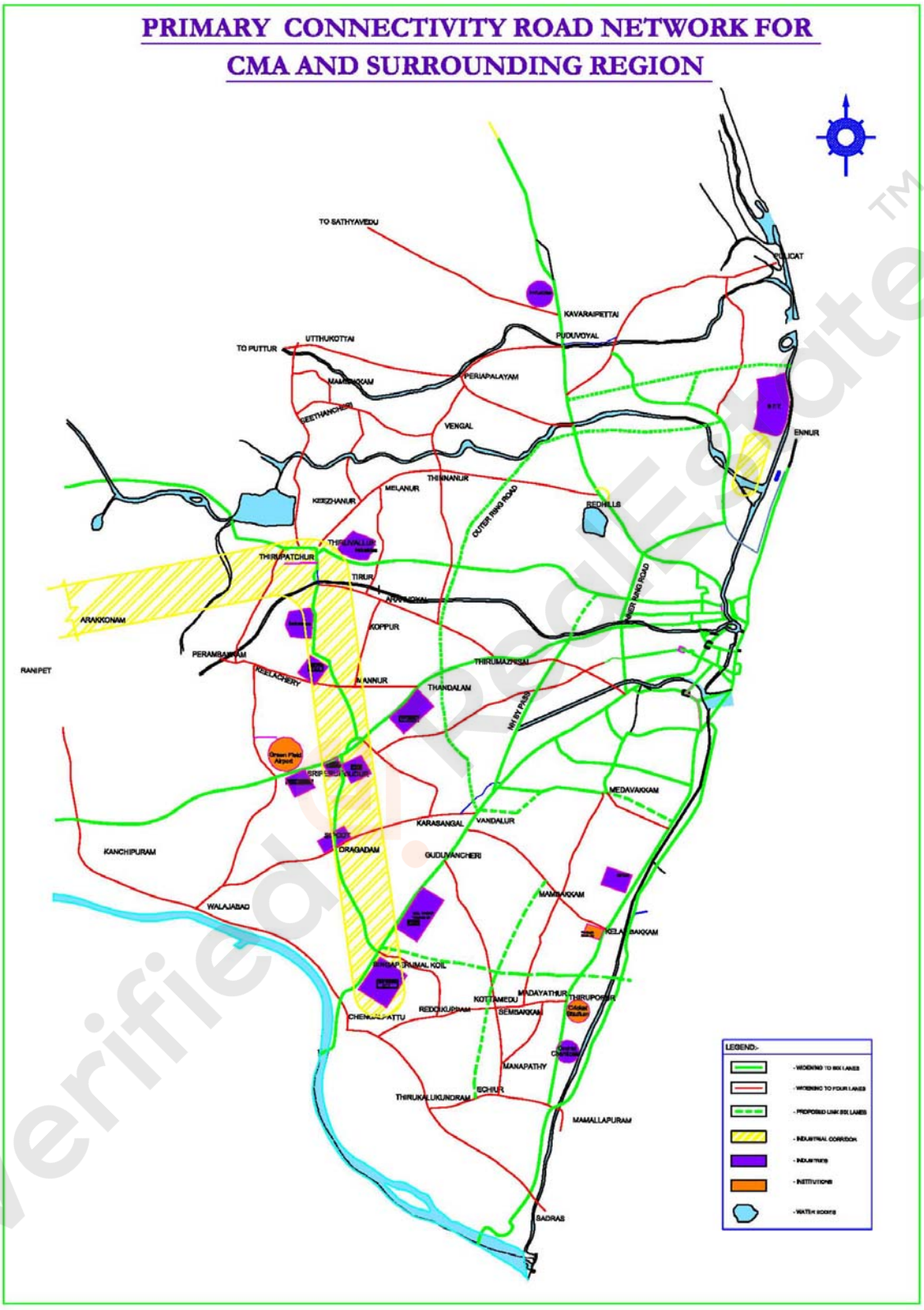
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| Sl.No | Name of the Road | Stretch | | Right of way (m) |
|---|---|---|---|---|
| | | From | To | |
| 63 | ORR South Eastern Segment (New Link) | MBI Road | Rajiv Gandhi Salai (OMR) | 61.0 |
| 64 | Extension of MMRD Scheme Road (New Link) | Rajiv Gandhi Salai (OMR) | ECR | 30.5 |
| 65 | ECR | City Limits | CMA Limits | 30.5 |
| 66 | Sholinganallur – Kudimiyandi Thoppu Road | Rajiv Gandhi Salai (OMR) | ECR | 18.0 |
| 67 | Medavakkam – Sholinganallur Road | MBI Road | Rajiv Gandhi Salai (OMR) | 18.0 |
| 68 | Sithalapakkam – Ottiyambakkam Road | Maduraipakkam Road | CMA Limits | 18.0 |
| 69 | Medavakkam-Maduraipakkam Road | MBI Road | CMA Limits | 18.0 |
| 70 | Vengaivasal – Madambakkam Road | MBI Road | Madambakkam Road | 18.0 |
| 71 | Madambakkam Road | MBI Road at Rajakilpakkam | Maduraipakkam Road at Sithalapakkam | 18.0 |
| 72 | Agaramthen Road | Madambakkam Road | Maduraipakkam Road at Kovilancheri | 18 |
| 73 | Rajiv Gandhi Salai (OMR) | Madya Kailash Junction | CMA Limits | As notified for acquisition by DoH shown in the individual village map |
| 74. | Nookampalayam Road | Rajiv Gandhi Salai (OMR) | Medavakkam-Ottiambakkam Road | 18.0 |

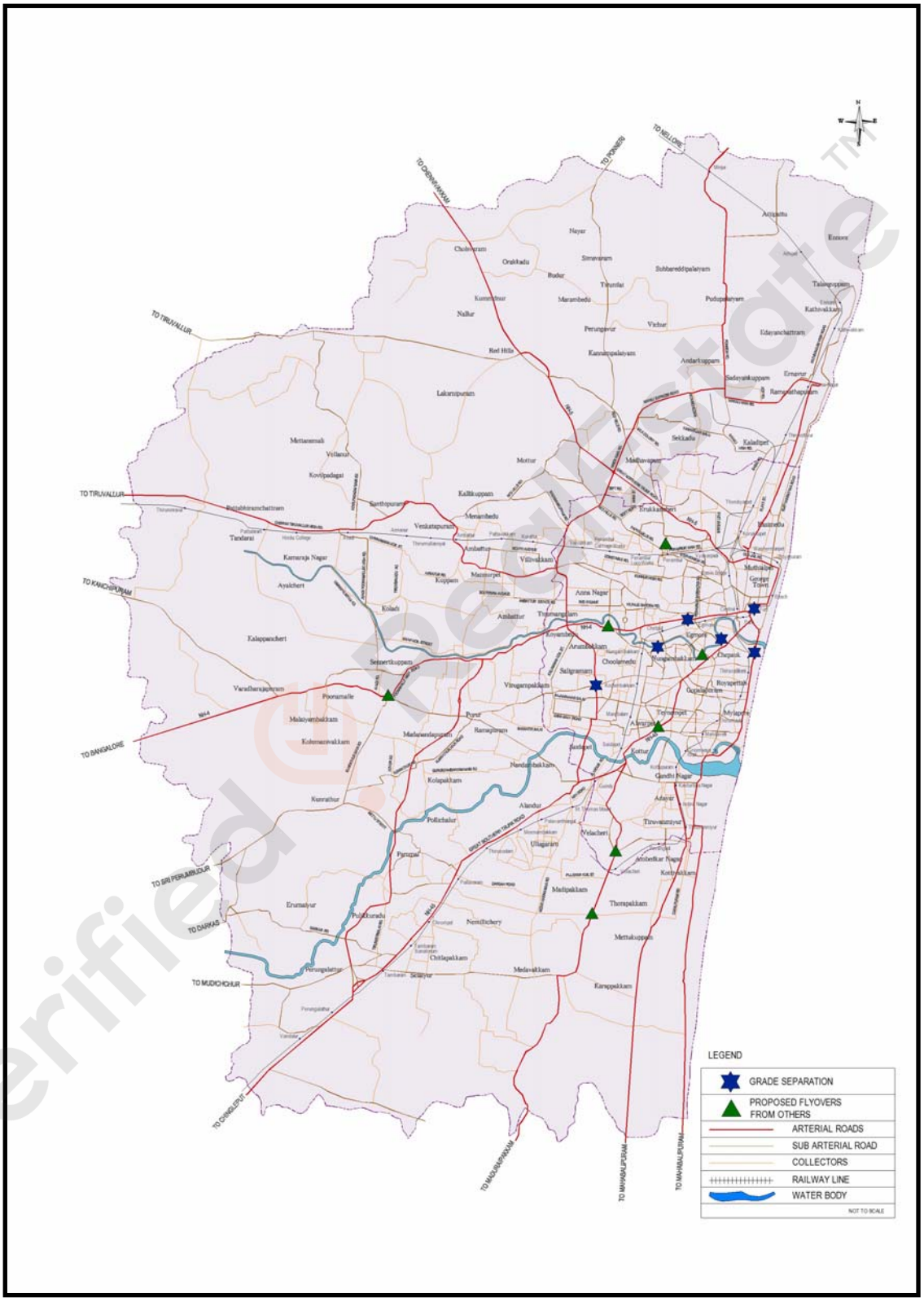
* *Excluding the stretches covered in approved Detailed Development Plan*

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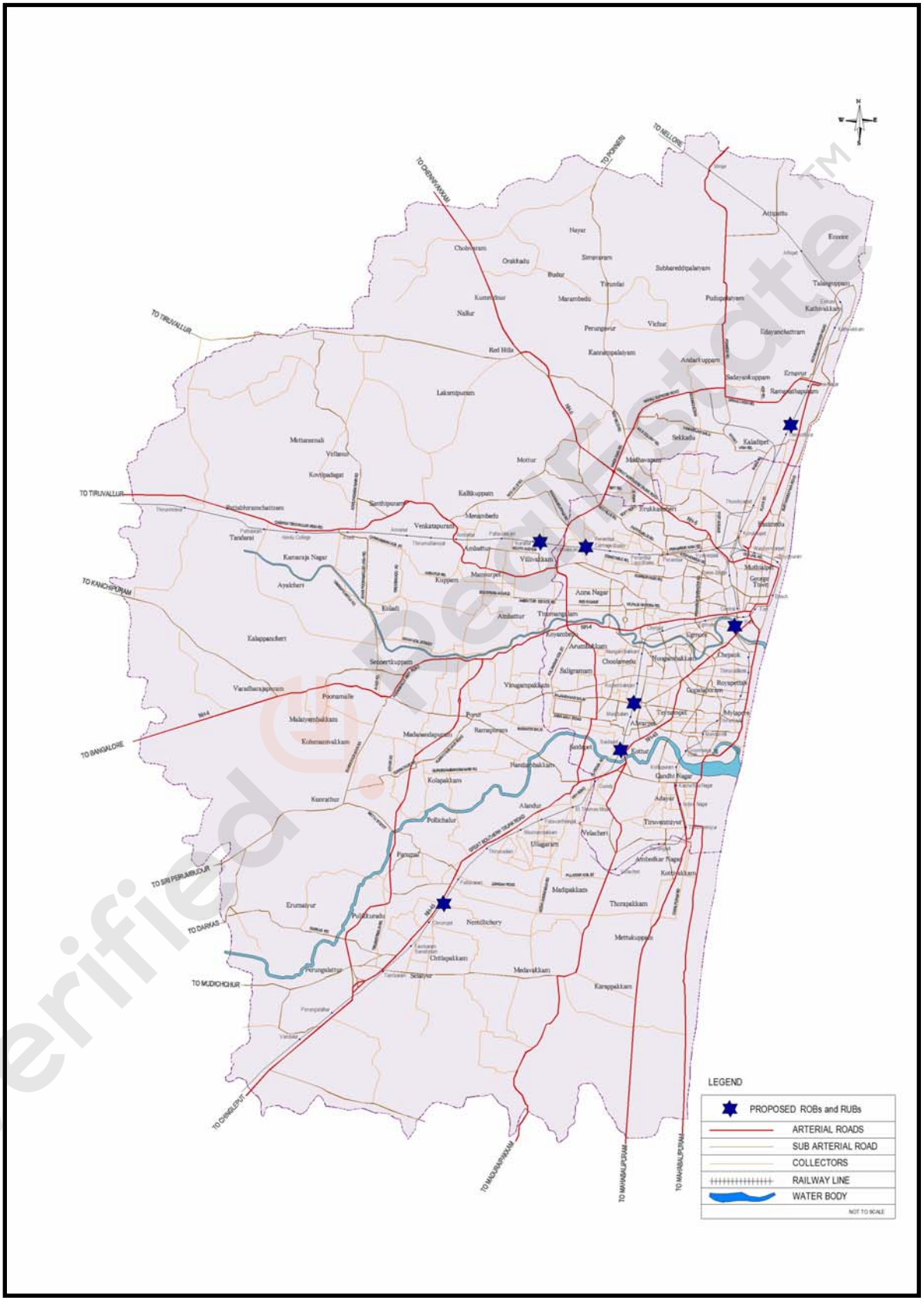
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**Map 1 : Primary Connectivity Road Network for CMA and the Surrounding Region**



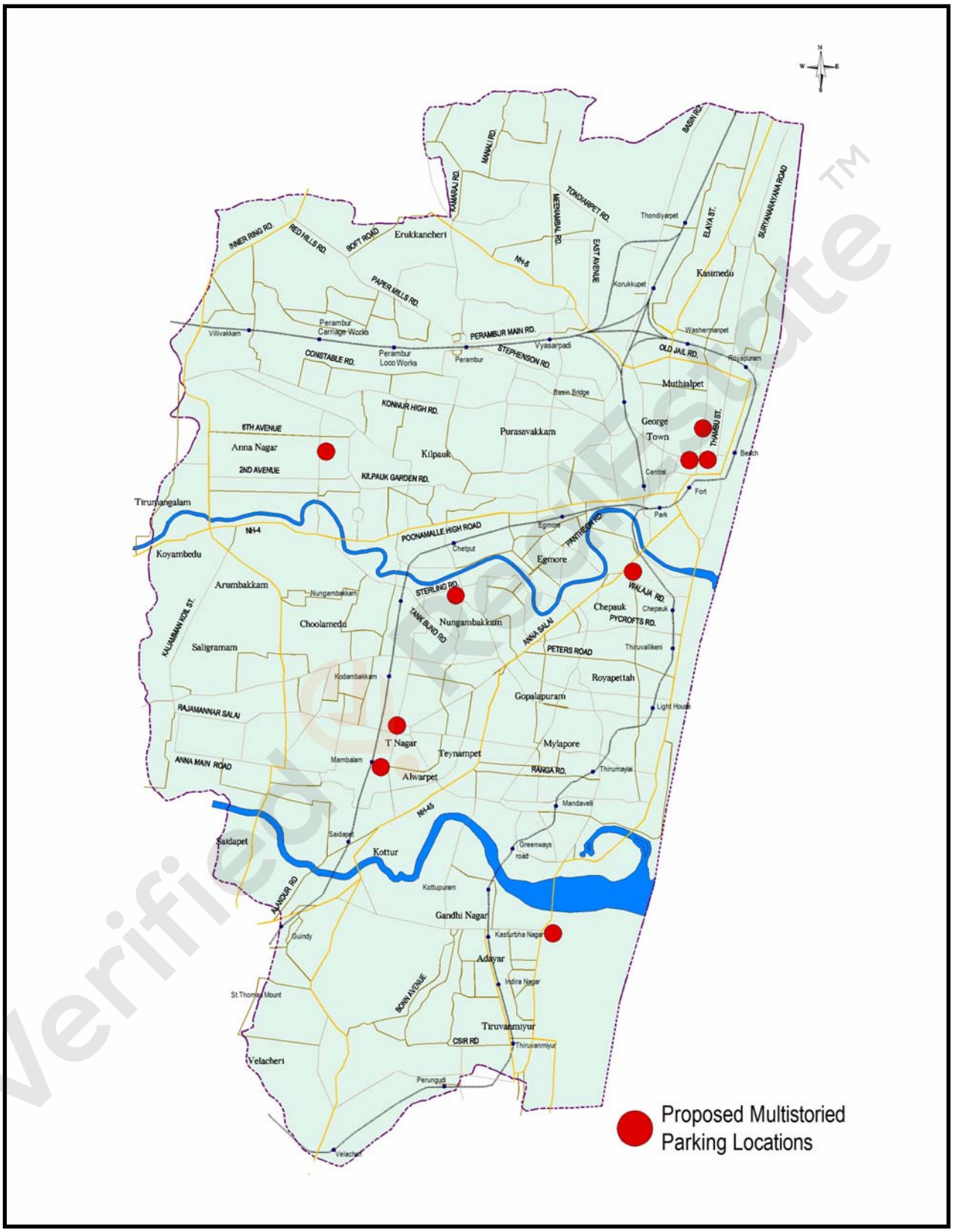

**Map 2: CCTS(2008-09)- Flyovers ( Preliminary Recommendation)**



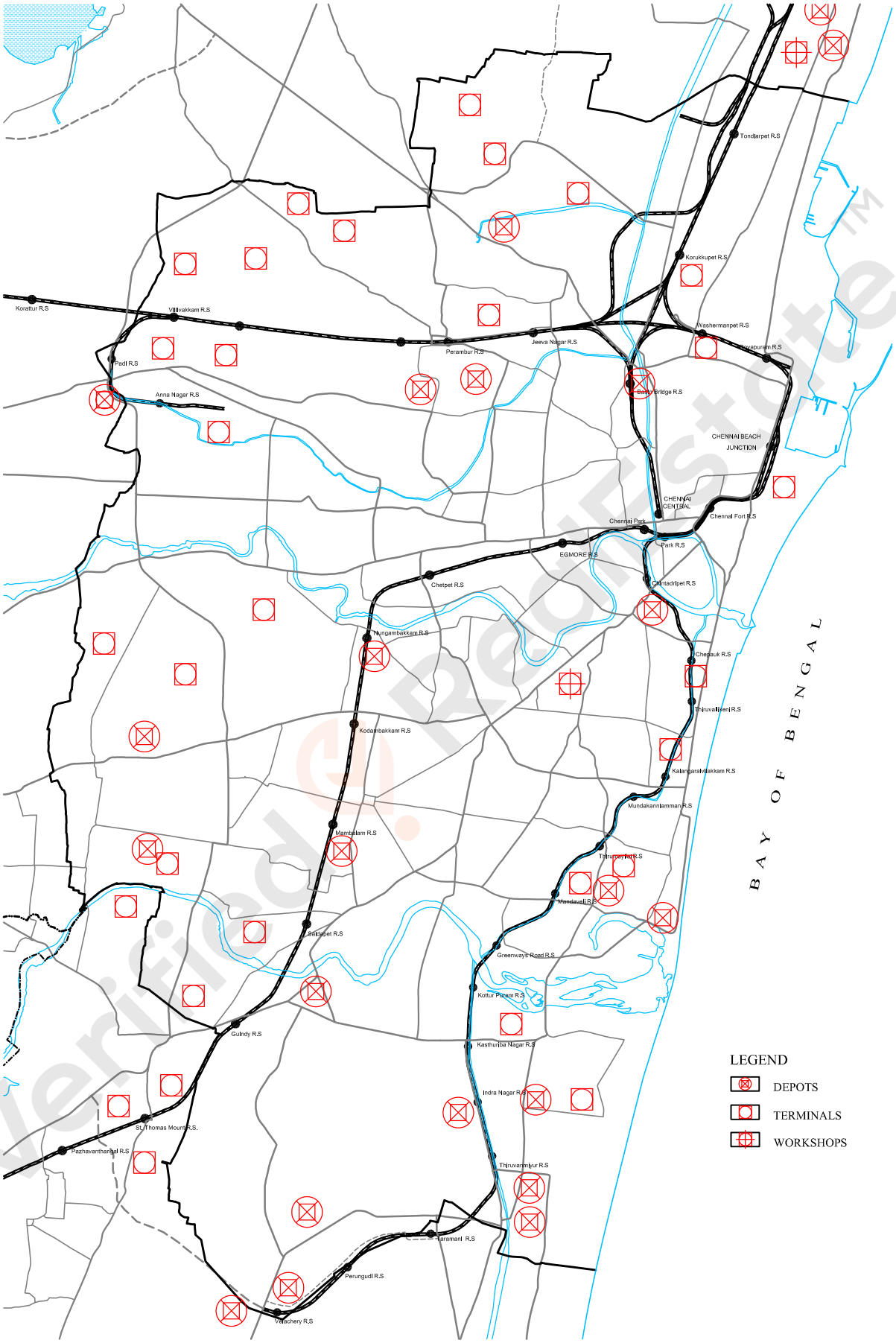

**Map 3: CCTS(2008-09) : RoBs / RuBs ( Preliminary Recommendation)**



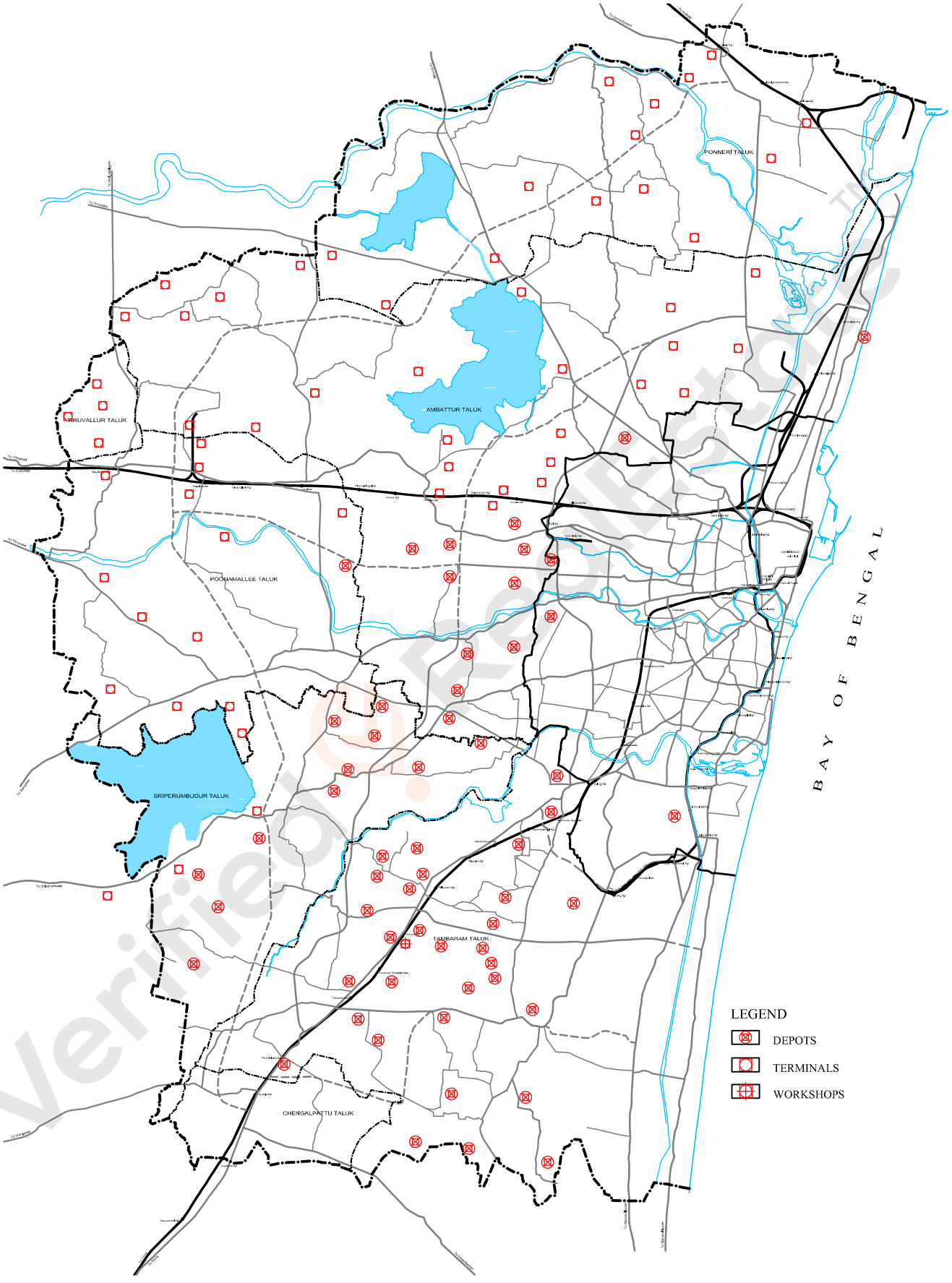

**Map 4 : CCTS(2008-09): Pedestrian Subways ( Preliminary Recommendation)**



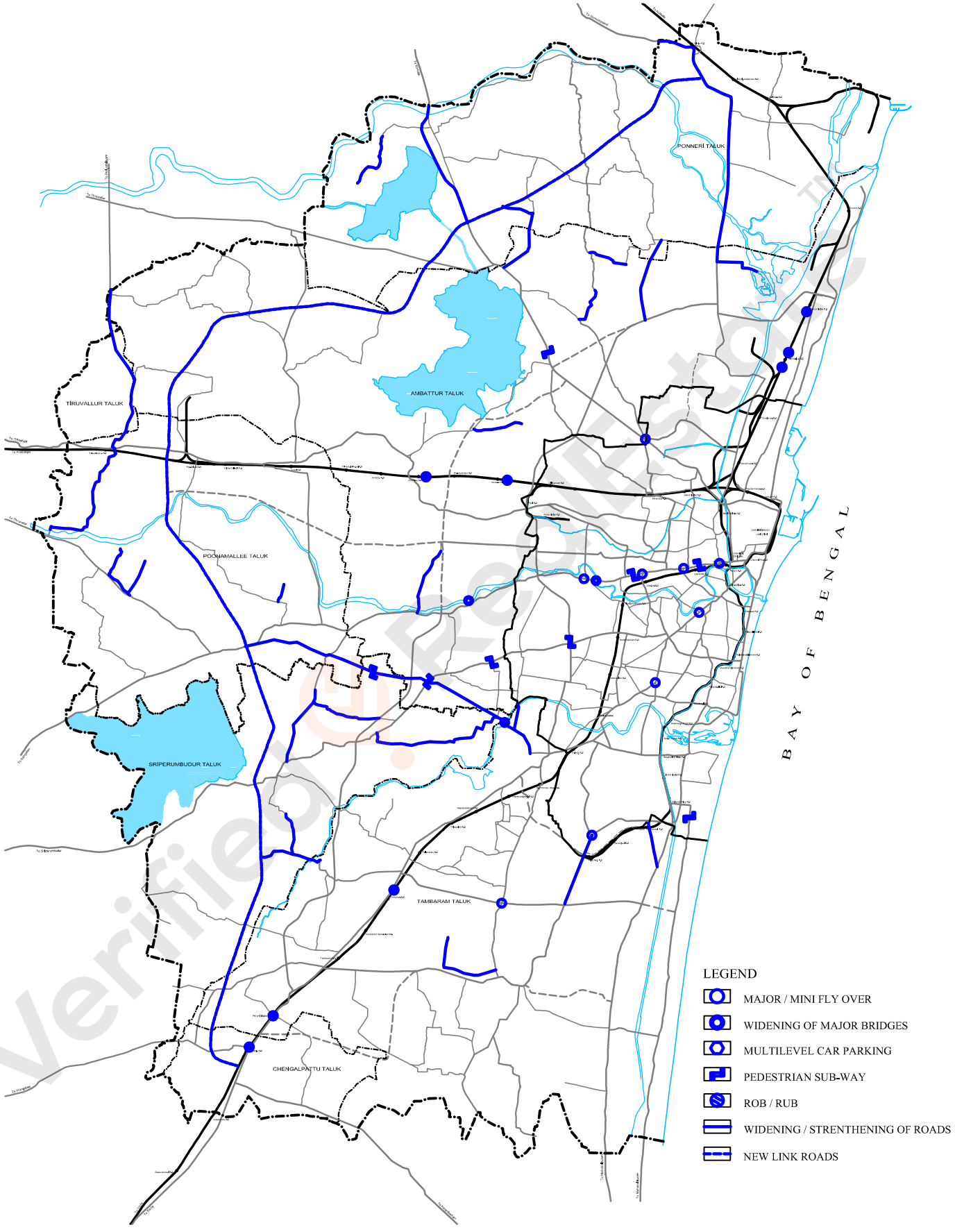

**Map 5: CCTS(2008-09)- Multi-Level Parking ( Preliminary Recommendation)**



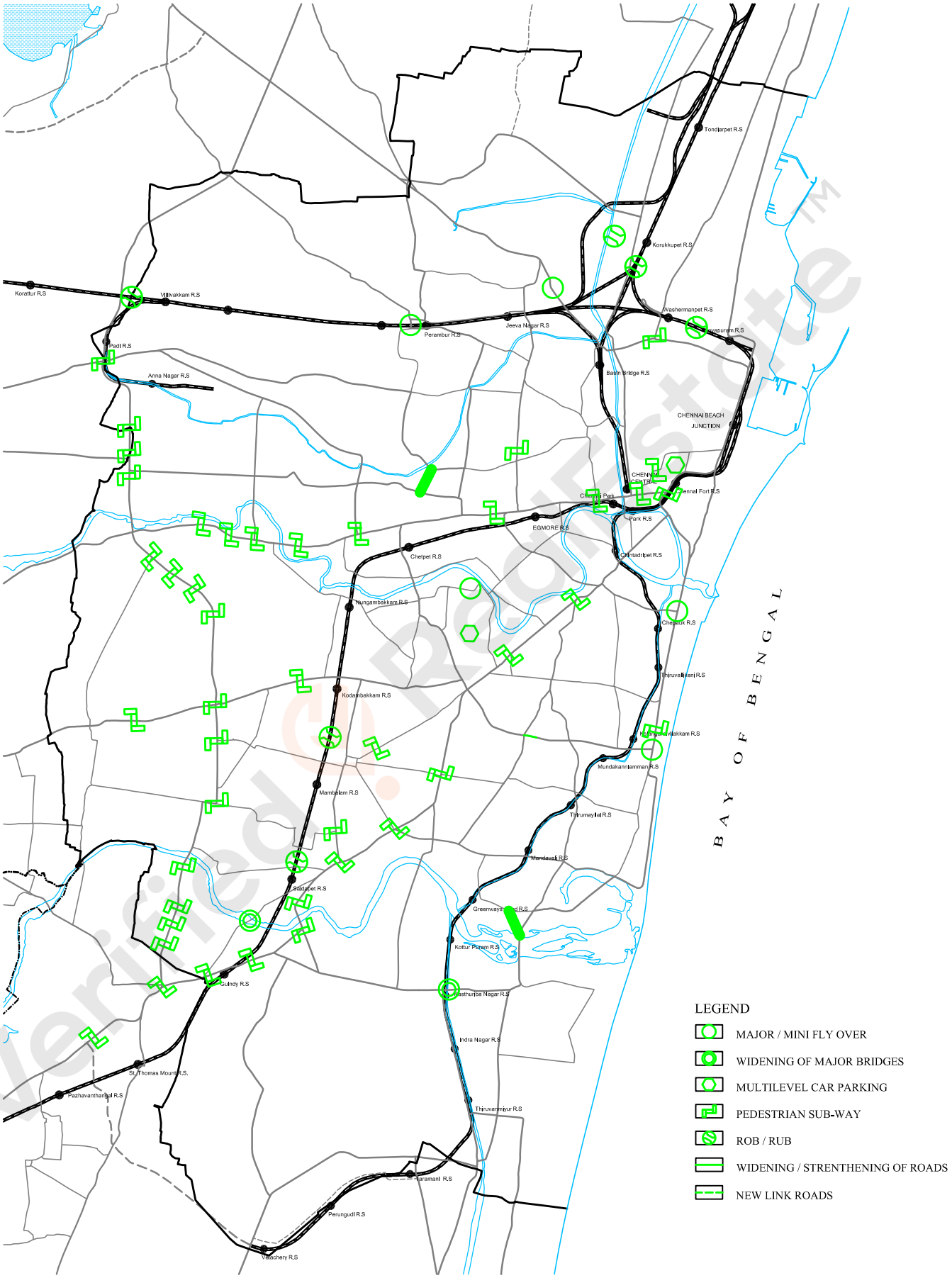

Map 6.1 : Immediate Shelf of Traffic and Transportation Schemes for City:MTC / Depots, Bus Terminals & Workshops



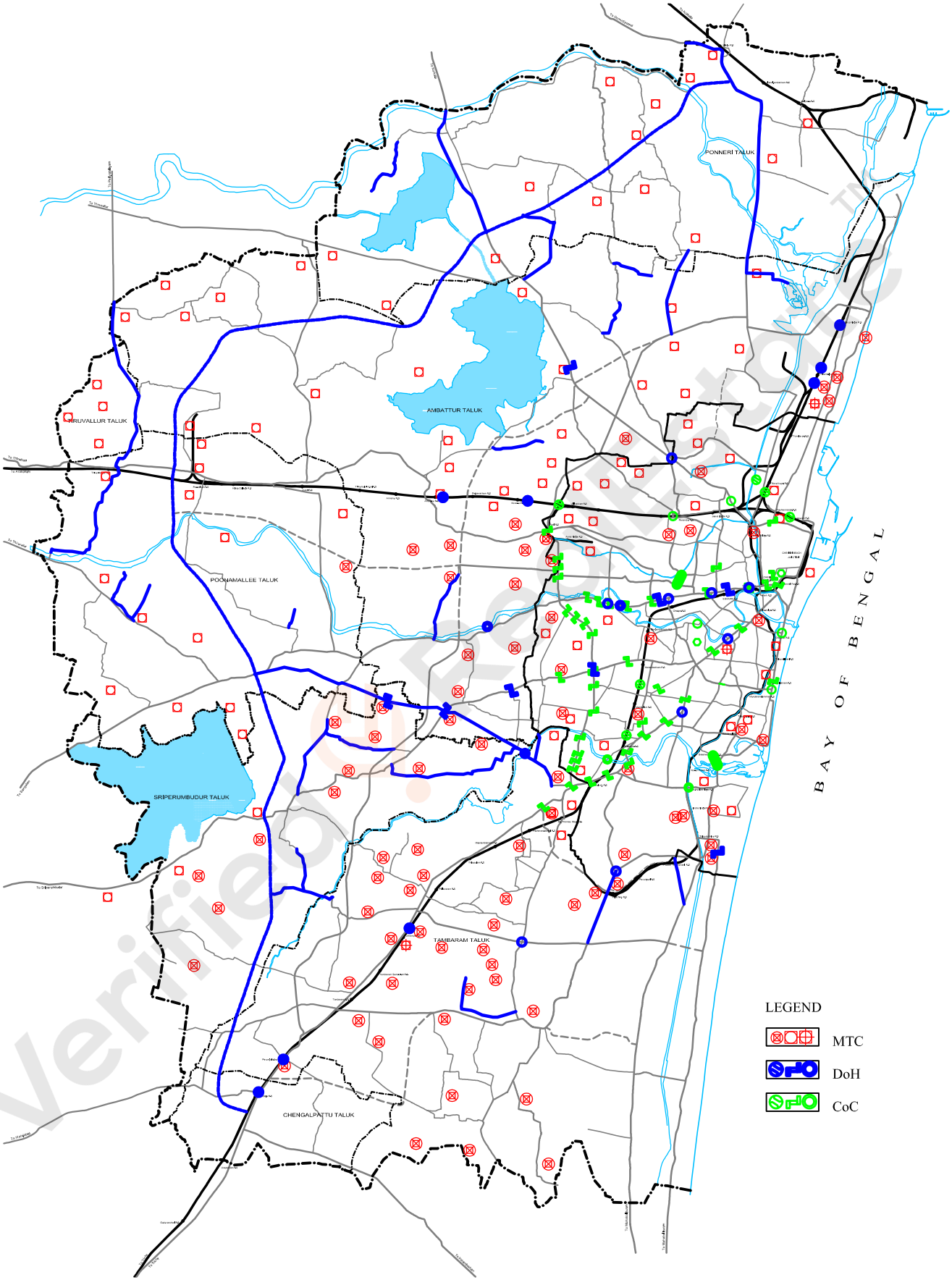

Map 6.2 : Immediate Shelf of Traffic and Transportation Schemes for CMA:MTC / Depots, Bus Terminals & Workshops



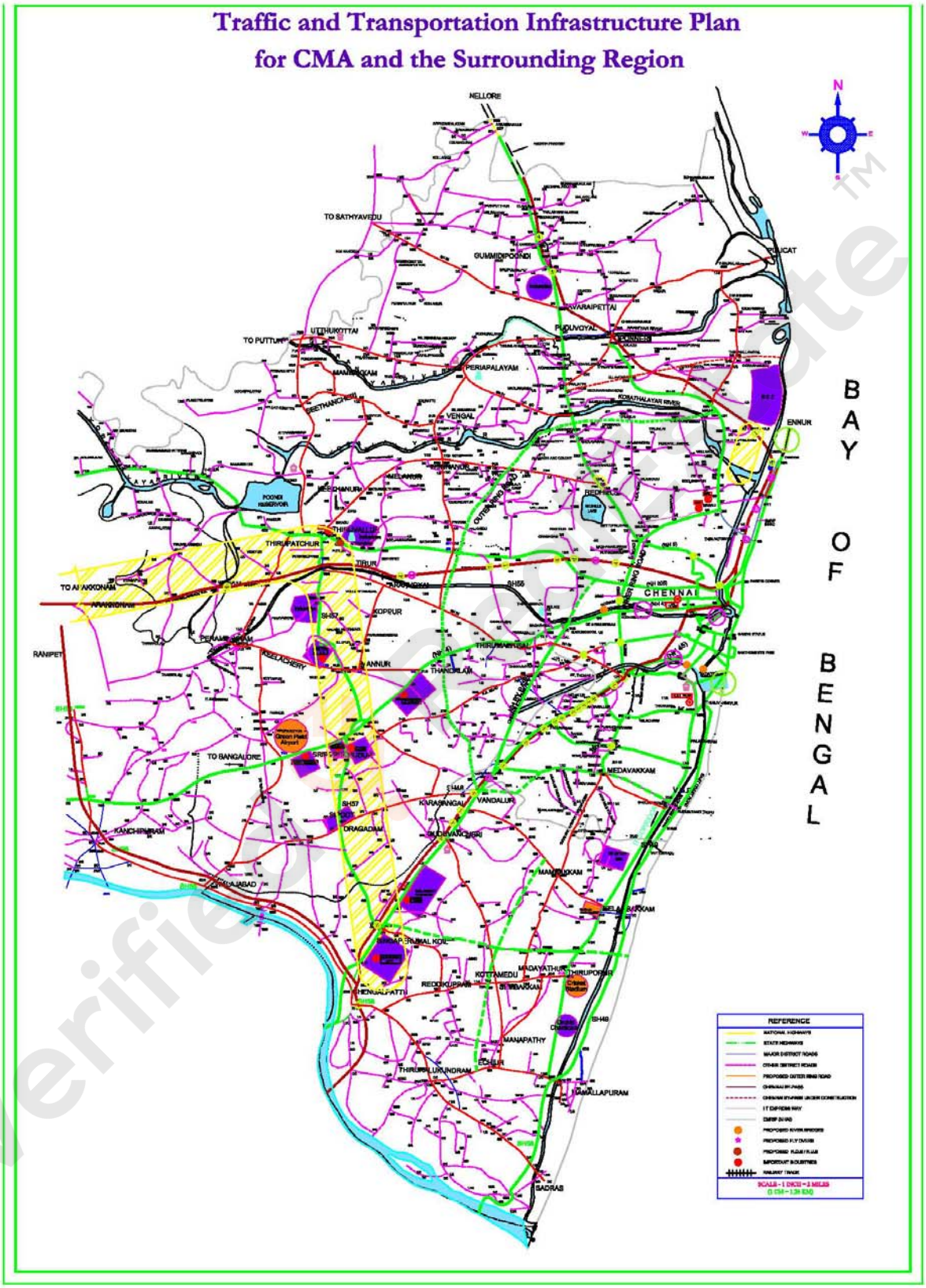

Map 7 : Immediate Shelf of Traffic and Transportation Schemes for CMA : DoH



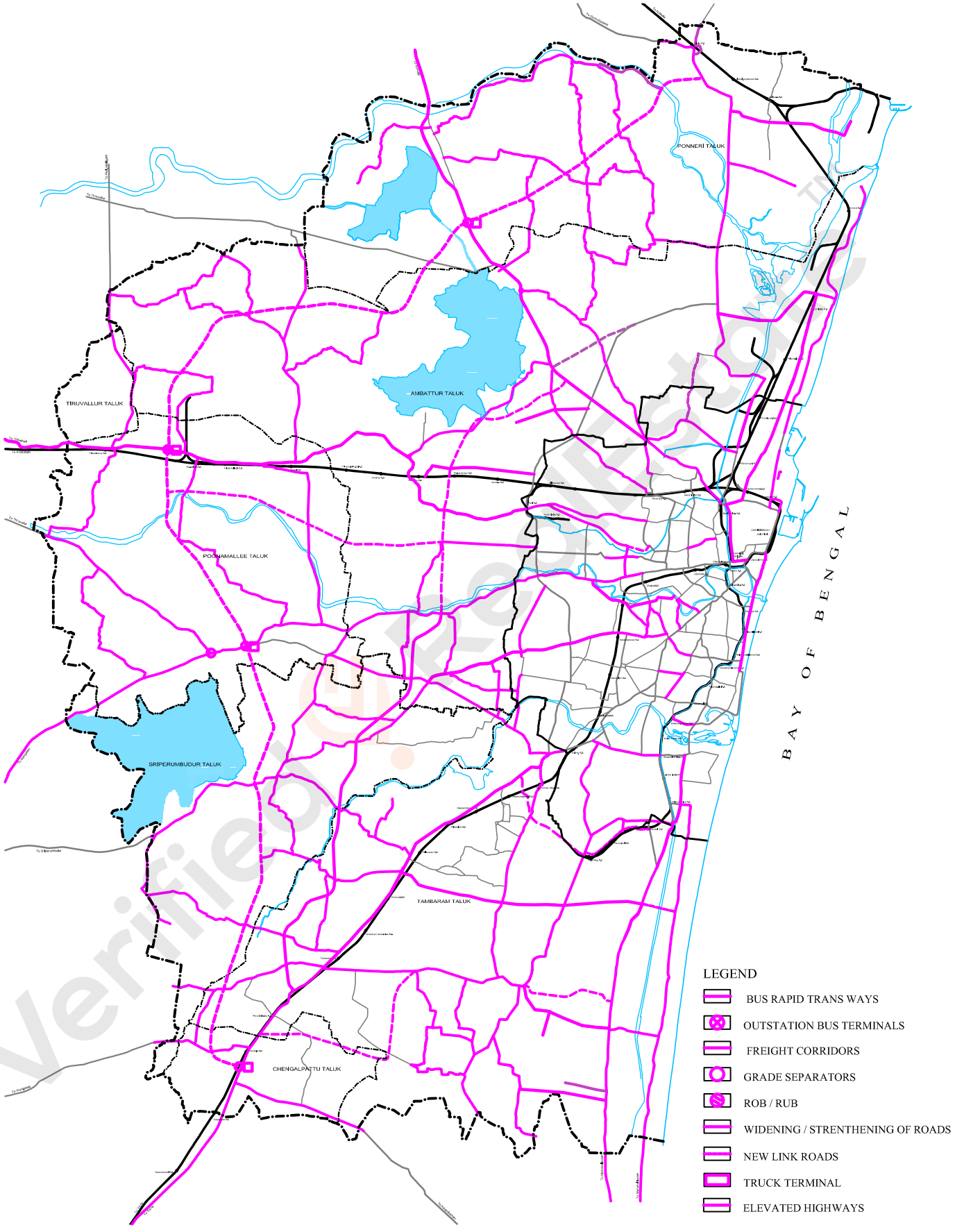

Map 8 : Immediate Shelf of Traffic and Transportation Schemes for City : CoC




Map 9 : Immediate Shelf of Traffic and Transportation Schemes for CMA : MTC/DoH/CoC




**Map 10 : Traffic and Transportation Infrastructure Plan for CMA and the Surrounding Region.**




Map 11 : Long Term Shelf of Traffic and Transportation Schemes for CMA