

# Workshop *on*

Kolkata City Dialogue on Air Quality  
and Transportation Challenge :  
*An Agenda for Action*

# **Air Pollution in KMA**

- **The Status of air pollution in KMA is alarming.**
- **According to WBPCB survey reports the SPM & RPM in air in Kolkata, Howrah and other ULBs adjoining the industrial areas exceed the permissible limits during the months November to March.**
- **The growth trends of SO<sub>2</sub> & NO<sub>2</sub> in air are also alarming.**
- **Automobile emissions contribute more than 60 % to the air pollution.**

# Transportation Scenario in KMA

Length of Highways & Arterial roads	700 km
Length of Suburban Rail Network	230 km
No of Suburban Rail Stations	110
Metrorail Network	23 km
Daily Passenger movement by Surface Transit Modes	14 million
Daily passenger movement by Suburban & metrorail	4.5 million
Average travel speed of vehicular traffic on 60% of arterial roads in Kolkata & Howrah during peak hours	Less than 15 kmph
Total no of trucks moving daily within the area	60000

# **Comprehensive Mobility Plan**

- ✿ **Mandated by Ministry of Urban Development (MoUD),  
GoI for all major cities**
- ✿ **Should be NUTP Compliant**
- ✿ **Should focus on mobility of people rather than  
vehicles.**
- ✿ **Priority should be given to**
  - ★ **public transport (all modes)**
  - ★ **Intermediate Public Transport (IPT)**
  - ★ **integrated Land Use & Transport Planning**
  - ★ **Non-motorised transport and pedestrianization**

# **Comprehensive Mobility Plan**

## **★ Should Cover :**

- ★ Traffic & Travel characteristics**
- ★ Future Growth Potential of the City**
- ★ Future Travel Demand**
- ★ Strategies & Recommended Projects / Actions**
- ★ Financial Aspects**

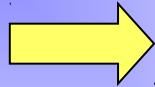
# **MASTER PLAN FOR TRAFFIC & TRANSPORTATION : 2001 - 2025**

**KOLKATA METROPOLITAN AREA**

# STAGES FOR PREPARATION OF TT MASTER PLAN

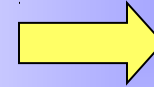
**January 2000**

**KMDA'S Planning Directorate** prepared a draft TT Master Plan in conjunction with the Perspective Plan (Vision-2025)



**July 2000 – June 2001**

The Draft TT Master Plan was modified as per the deliberations of the **Working Group** constituted by the Chief Secretary GoWB vide no 2549-UD/0/M/SB S-29/96 dated 6-7-2000. The working group was represented by official from KMDA, Transport Dept., PW (Roads) Dept. GoWB, Kolkata Municipal Corporation, Howrah Municipal Corporation, Eastern Railways, South Eastern Railways, Kolkata Port Trusts, Hooghly River Bridge Commissioners, DC (Traffic) Kolkata Police, SP Howrah, Airport authority of India



**Dec 2001 - Feb 2004**

The Draft Master Plan was presented to KMPC in December 2001

**The Traffic Transportation, Railways & Water ways Sector Committee** constituted under KMPC finalised the Draft Master Plan after detailed scrutiny and with observations from local bodies within KMA & public representatives

**The Draft Master Plan finalised by the TTRW Committee was formally approved by KMPC, Jan 2006**

# **STRATEGIES FOR DEVELOPMENT OF METROPOLITAN TRANSPORT SYSTEM**

- **Decentralized Metropolitan Structure**
- **Priority to transit**
- **Fuel and energy conservation**
- **Environmental consideration**
- **Focus on Metropolitan Centre**
- **Para transit modes**
- **Pedestrian facilities**
- **Adoption of updated technology**
- **Balanced participation of public sectors and private sectors**



# Break-up of Total Trips in KMA

**Average weekday : 1998**

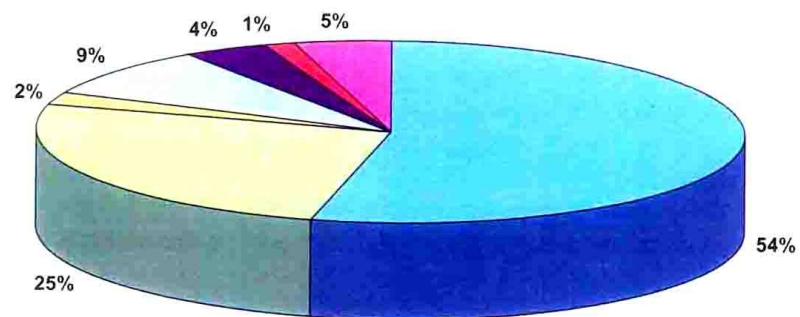
Category of Trips	Total (in lakh)
Transit Passengers trips	110.60
Private Car trips	1.72
Two Wheeler Trips	2.63
Slow Vehicle Trips	14.16
Para Transit Trips	
- Taxi	3.64
- Auto Rickshaw	9.90
- Cycle Rickshaw	7.24
Others	0.53
Walking Trips	62.96
<b>TOTAL</b>	<b>226.15</b>

*As per household survey conducted in 1998*

## DISTRIBUTION OF TRIPS BY TRIP PURPOSE

(PERCENTAGE)

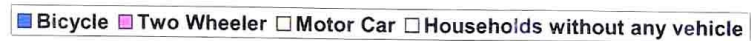
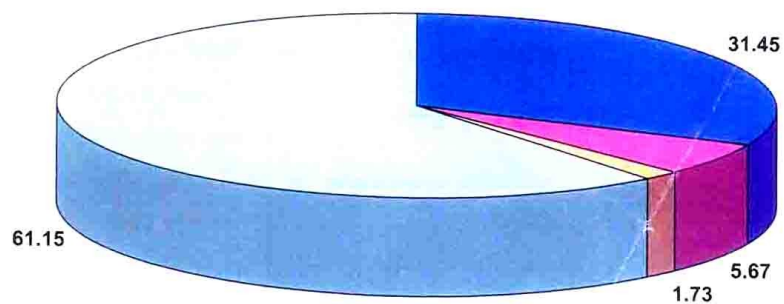
Average Weekday : 1997-98



## HOUSEHOLDS OWNING DIFFERENT CATEGORIES OF VEHICLES IN KMA

(PERCENTAGE)

1997-98



# **Components of the Master Plan**

- **Future Transport Network Plan**
- **Future Mass Transportation Plan**
- **Future Goods Transportation Plan**
- **Traffic Operation Improvement Plan for the Metropolitan Centre**
- **Transport infrastructure development need & recommended action plan**

# ULBs in KMA

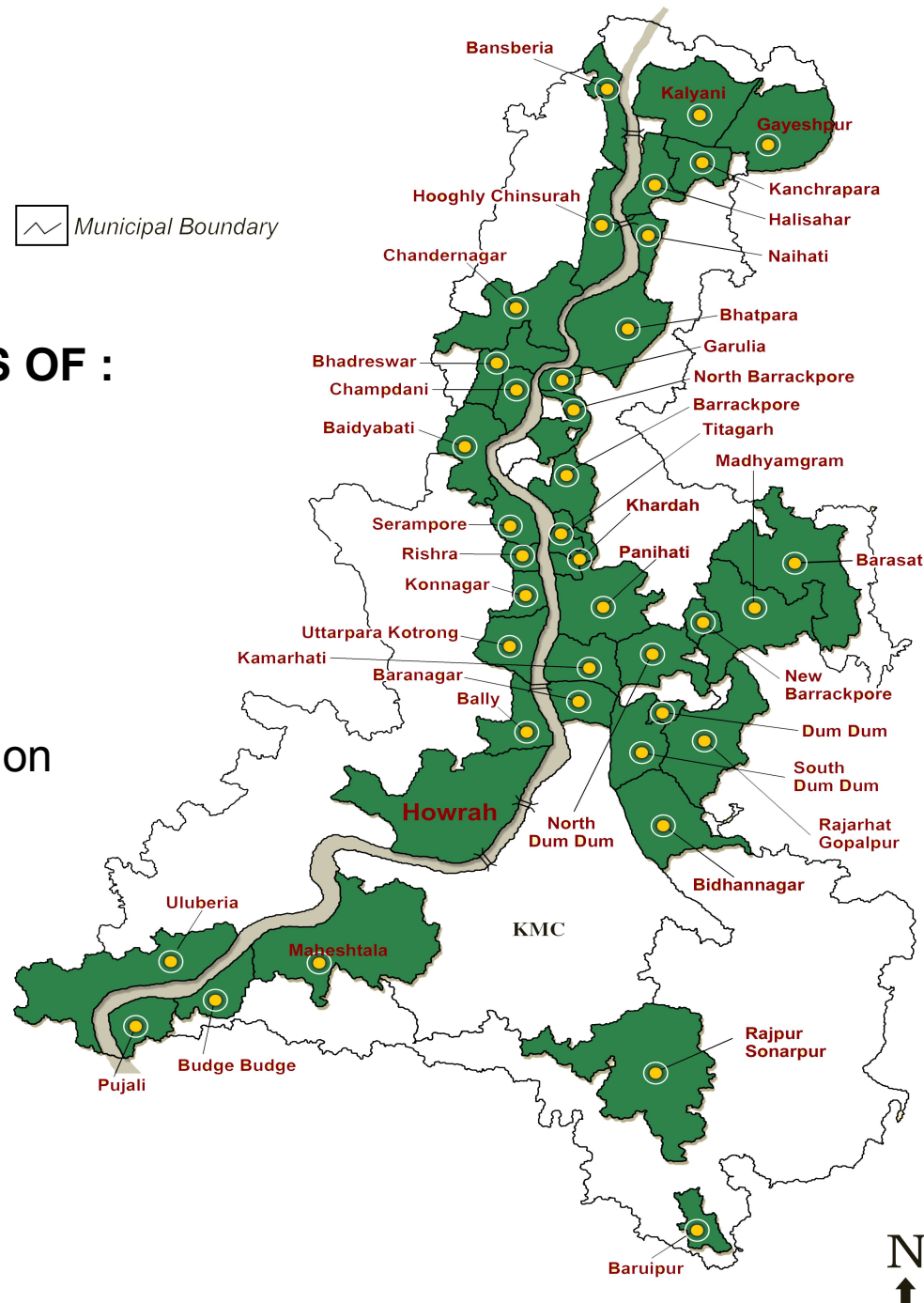


## KMA AREA CONSISTS OF :

- 3 Municipal Corporations
- 38 Municipalities
- 22 Panchayat Samities

**AREA : 1851 sqkm**

**Population : 14.68 million  
(2001)**



**Metro Center :**

**Kolkata**

**Metro Sub -Center :**

**Howrah**

Population projected :  
1.2million (2001)  
1.55 million (2025)

**Trans Metro City  
System 5 nos.**

Population Range:  
0.25 – 0.5 million

Kalyani, Barasat,  
Salt Lake-Rajarhat,  
Baruipur, Uluberia-  
Bagnan

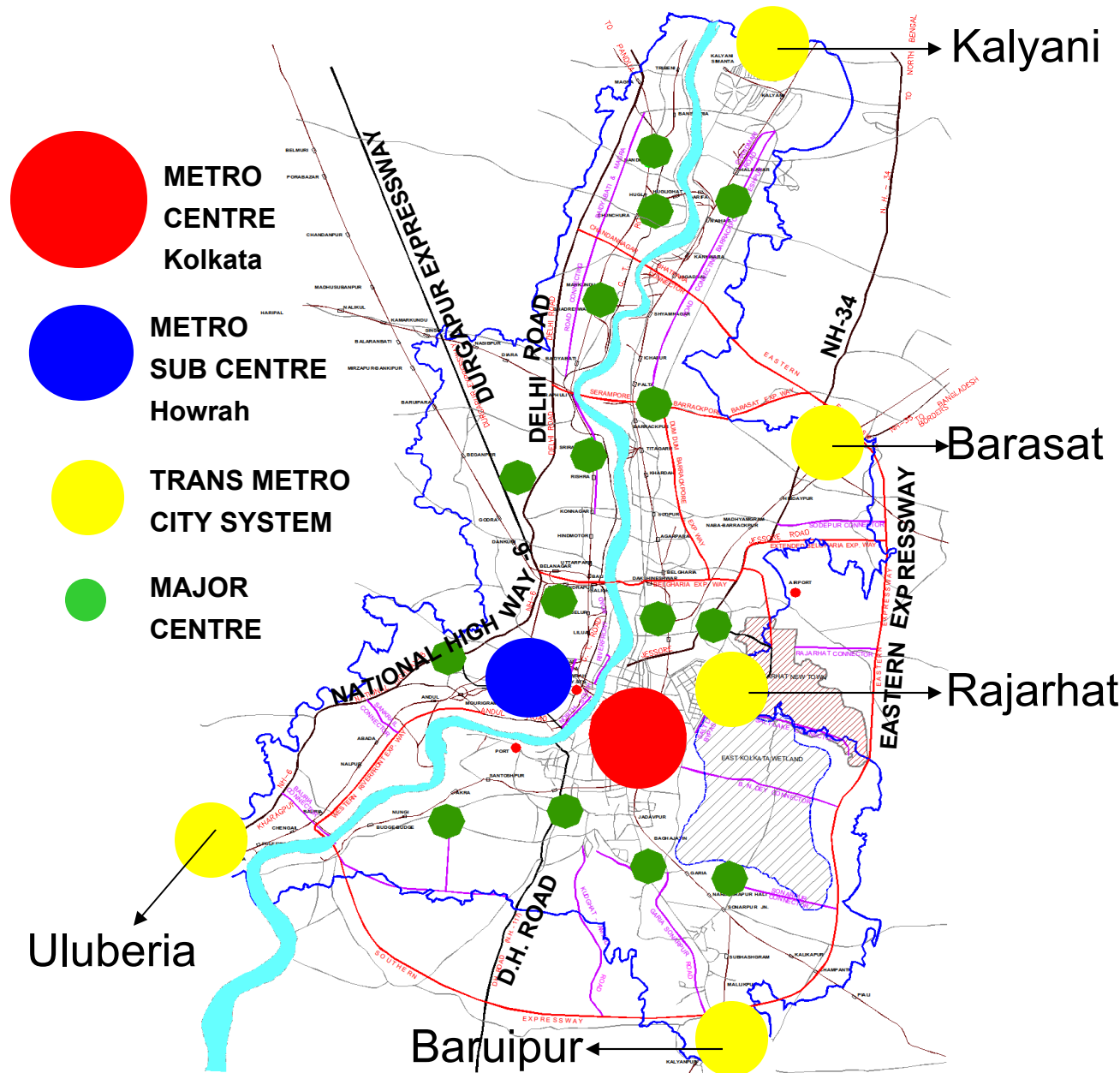
**Major centers : 15 nos.**

Existing, Centres would grow

Population Range:  
0.5 – 0.75 million

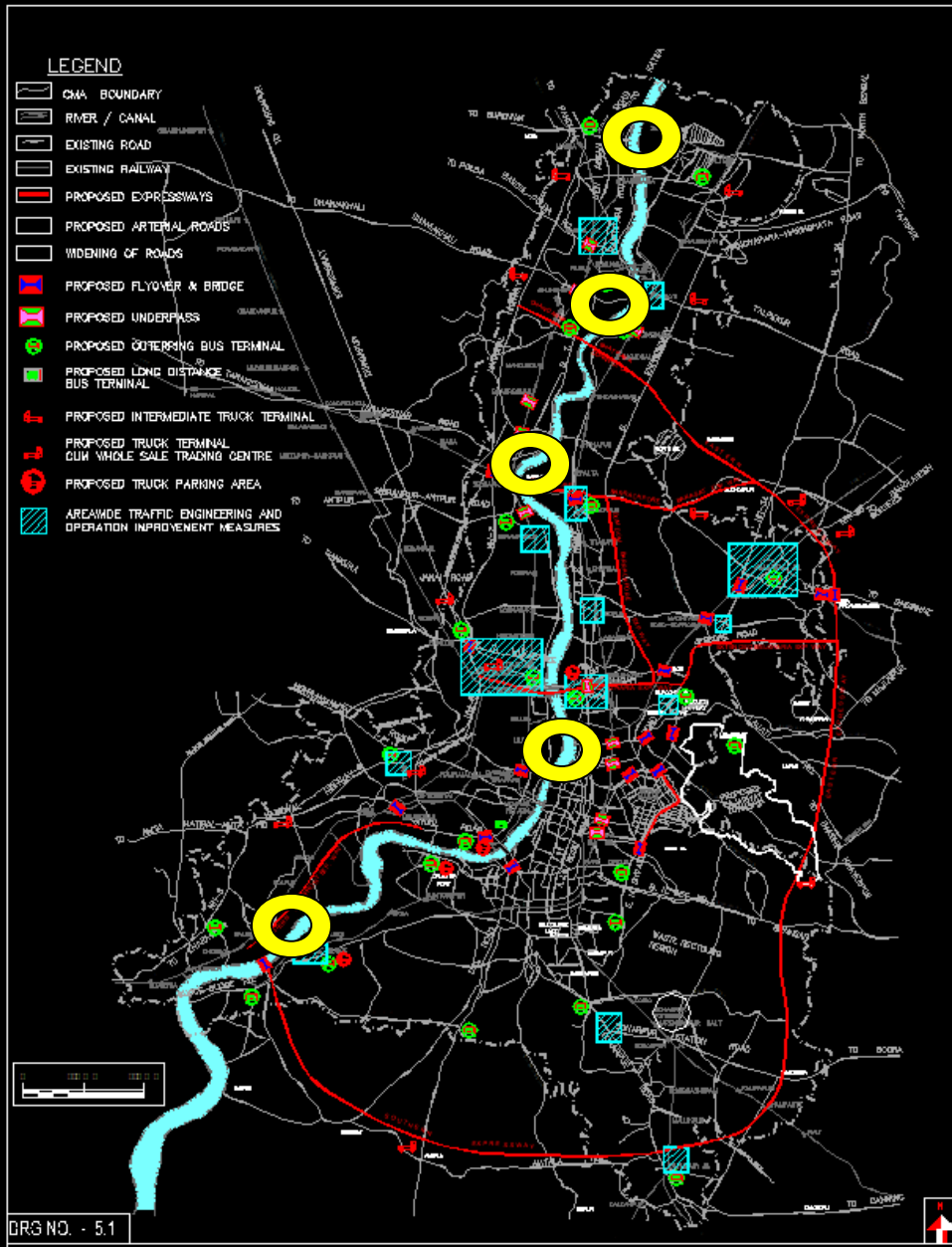
Dankuni, Sonarpur, Naihati-Bhatpara,  
Barrackpore, Baranagar-Kamarhati, Dum  
Dum-South Dum Dum, Garia-Jadavpur,  
South suburban, Budge-Budge-  
Maheshtala, Kona-Unsani, Bally-  
Jagacha, Serampore, Bhadreswar-  
Chamdpani, Hooghly-Chinsurah , Bansberia

## PROPOSED METROPOLITAN STRUCTURE SPATIAL DISTRIBUTION OF CENTRES - 2025



# **PROJECTED SCENARIO IN KMA (2001 - 2025)**

- **POPULATION : 147 TO 210 LAKHS (46%)**
- **MOTORISED VEHICLE : 10 TO 30 LAKHS (300%)**
- **MASS TRANSIT PASS : 187 TO 322 LAKHS (72%)**
- **GOODS VEHICLES : 41,000 TO 71,000 (73%)**
- **GOODS CARRIED / YEAR: 980 TO 1700 LAKH-TONS (73%)**
- **THE NUMBER OF PERSONS COMING DAILY TO KMA FROM THE ADJOINING AREAS BY RAIL AND ROADS WILL INCREASE FROM : 12 TO 20 LAKHS (67%)**
- **TOTAL FAST DAILY TRANS-RIVER TRAFFIC : 1.43 TO 3.12 LAKHS (118%)**



## **New Bridges (TOTAL 5 Nos.)**

- **Iswar Gupta Setu – 2<sup>nd</sup> Phase**
- **Serampore-Barrackpore**
- **Bhatpara-Chandennagar**
- **Sovabazar-Salkia**
- **Budge Budge - Bauria**

# **NEW BRIDGES ACROSS HOOGHLY RIVER IN KMA**

# MOVEMENT OF PASSENGERS WITHIN KMA

Anticipated modal split

Average Week day

Modes	Volume of passengers (in lakhs)				
	2001	2011	2016	2021	2025
<b>Surface Transit</b>					
Private Bus	85.00(7000)	94.00	100.00	107.00	112.00
Public Bus	12.50(1550)	16.00	19.00	25.00	30.00
Tram/LRT	2.00(200)	5.00	7.00	9.00	10.00
Minibus	12.50(1560)	16.00	18.00	20.00	22.00
Ferry	2.40	4.00	5.00	6.00	7.00
Chartered Bus	2.70(2150)	5.00	7.00	9.00	11.00
<b>Sub-Total</b>	<b>117.10</b>	<b>140.00</b>	<b>156.00</b>	<b>176.00</b>	<b>192.00</b>
<b>Rail</b>					
Suburban Rail	32.50	37.50	41.00	44.00	46.00
Metro Rail	2.00	8.00	10.00	11.50	13.00
Circular Rail	0.20	2.50	3.00	3.50	4.00
<b>Sub-Total</b>	<b>34.70</b>	<b>48.00</b>	<b>54.00</b>	<b>59.00</b>	<b>63.00</b>



# MOVEMENT OF PASSENGERS WITHIN KMA (Contd..)

Modes	Volume of passengers (in lakhs)				
	2001	2011	2016	2021	2025
<b>Para Transit</b>					
Taxi	11.00(22000)	17.00	22.00	26.00	28.00
Autorickshaw	16.50(25000)	23.00	27.00	30.00	31.00
Cyclerickshaw/Rickshaw/Cyclevan etc.	7.50(25000)	7.00	7.00	8.00	8.00
<b>Sub Total</b>	<b>35.00</b>	<b>47.00</b>	<b>56.00</b>	<b>64.00</b>	<b>67.00</b>
<b>GRAND TOTAL</b>	<b>187.00</b>	<b>235.00</b>	<b>266.00</b>	<b>299.00</b>	<b>322.00</b>

# MOVEMENT OF PASSENGERS

## AVERAGE WEEKDAY PASSENGER VOLUME IN LAKHS

MODES	2001	2025	% INCREASE
<i>SUBURBAN RAIL</i>	<i>32.5</i>	<i>46.0</i>	<i>41</i>
<i>METRO RAIL</i>	<i>2.0</i>	<i>13.0</i>	<i>550</i>
<i>CIRCULAR RAIL</i>	<i>0.2</i>	<i>4.0</i>	<i>1900</i>
<i>TRAM/LRT</i>	<i>2.0</i>	<i>10.0</i>	<i>400</i>
<b>BUS</b>	<b>113</b>	<b>175</b>	<b>55</b>
<b>PARA TRANSIT</b>	<b>35.0</b>	<b>67.0</b>	<b>91</b>
<b>INLAND WATER TRANSPORT(Ferry)</b>	<b>2.4</b>	<b>7.0</b>	<b>191</b>
<b>TOTAL</b>	<b>187.0</b>	<b>322.0</b>	<b>72</b>

# Major Recommendations of the T.T.Master Plan (2001-2025)

<b>New Metropolitan Highways</b>	<b>144 KM</b>
<b>New Arterial Roads</b>	<b>234 km</b>
<b>Widening, Strengthening &amp; Extension of existing highways &amp; arterial roads</b>	<b>450Km</b>
<b>Flyovers &amp; Underpasses</b>	<b>37 Nos.</b>
<b>Bridges over river Hooghly and canals</b>	<b>13 Nos.</b>
<b>Pedestrian Underpasses/F.O.B</b>	<b>20 Nos.</b>
<b>Areawide Traffic Engineering &amp; Operation Improvement Schemes</b>	<b>37nos covering 130 major intersections</b>
<b>Truck terminals &amp; truck parking areas</b>	<b>12 Nos.</b>
<b>Bus terminals</b>	<b>44 Nos.</b>
<b>Off-street Car parking facilities</b>	<b>12 locations within metrocore area</b>
<b>Mass Rapid Transit ( metro rail)</b>	<b>32 km</b>
<b>Light Rail Transit</b>	<b>97 Km</b>

# **Agenda for improvement of transportation system & air quality in KMA**

**Short Term Measures**



- ✿ **Traffic Operation improvement in congested locations/stretches**
- ✿ **Widening of existing highways & arterial roads**
- ✿ **Construction of flyovers ,bridges and missing links .**
- ✿ **Banning of on-street parking , restriction of commercial & slow moving vehicles in peak periods**
- ✿ **Phasing out old vehicles**
- ✿ **Enforcing emission standards on all categories of vehicles**
- ✿ **Improving the public transport services - increasing the no of routes & area coverages, induction of vehicles with updated technology**

***Contd.***

# **Agenda for improvement of transportation system & air quality in KMA**

*Contd..*

**Short Term Measures**



- ✿ **Introduction of Bus Rapid Transit System on selected corridors**
- ✿ **Improving the suburban rail services with higher frequency of train services with higher capacity trains.**
- ✿ **Improving the accessibility and dispersal facilities of suburban rail stations**
- ✿ **Providing exclusive lanes / right of ways for bicycles, cycle rickshaws etc.**
- ✿ **Improving the operation of the tram and metrorail services**
- ✿ **Conversion of buses and autorickshaws to CNG or LPG**
- ✿ **Application of renewable energy options for street lighting**

# **Agenda for minimizing air pollution from vehicle emissions**

**Long Term Measures**



- ✿ Extension of the metrorail, suburban rail & Light rail network**
- ✿ Construction of highways and arterial roads bypassing the congested & core areas**
- ✿ Relocation of wholesale trading centres and railway goods terminals from the core areas to the periphery**
- ✿ Construction of truck terminals near the highway nodes at the periphery**
- ✿ Construction of railway dispersal links & lines for passenger as well as goods movement**
- ✿ Promote the development of planned new towns and settlement areas as per the metropolitan structure plan to ensure the balanced distribution of population & activities within KMA**

# **Monitoring**

**Actions regarding the above agenda involve a numbers of agencies of State & Central Government.**

**The monitoring of the progress should therefore be taken up by the Transportation and Environment Sector Committees under KMPC.**