



# BUS RAPID TRANSIT SYSTEM

for MYSORE CITY





# About Mysore City...



BUS RAPID TRANSIT SYSTEM - MYSORE



- City of palaces & major tourist destination.
- Heritage City famous for silk, ivory & sandal wood.
- Developing as a I.T. Hub.
- Growing as satellite city of Bangalore.
- I.T. Activities, commercial , industrial & educational institutes shifting to Mysore.



# Mysore City Profile...



BUS RAPID TRANSIT SYSTEM - MYSORE



*Heritage*



*Festival*



*Art & Culture*

- Population (2001)
- Estimated in 2006
- Estimated in 2011
- Estimated in 2030
- Mysore City Conurbation Area
- Total Road Network

7.86 lakhs

9.04 lakhs

10.4 lakhs

19.0 lakhs

80.5 sqkm

1773 kms



# Traffic Characteristics



BUS RAPID TRANSIT SYSTEM - MYSORE

- Heterogeneous – mix of fast & slow moving vehicles
- Current Vehicular Population – 3.55 Lakhs
- Growth per annum – 8-9%

Vehicle	1986	1989	1996	2006
4 Wheeler	4,829	5,717	11,291	32,431
2 Wheeler	45,125	68,060	1,28,336	2,86,079
Truck	2,145	2,310	3,712	5,937
Bus	1,021	1,318	955	2,693
Total	53,120	77,405	1,44,294	3,55,014





# Existing Scenario



- Increase in
  - commercial & tourism activities
  - overall economic growth of city
  - use of personalized vehicles
- Lack of effective Mass Transport
- Poor road infrastructure
  - Increase in rate of accidents
- Shift of activities from B'lore to Mysore
  - Improved connectivity like B'lore-Mysore Expressway, Bangalore-Mysore 4 Lane Highway, Broad-Gauge Railway connectivity & new Airport



# Existing Scenario



BUS RAPID TRANSIT SYSTEM - MYSORE



Lack of Bus Shelters

Road Congestion



Parking on Foot-path

Lack of Pedestrian Facility



Haphazard Parking

On Street Parking





# Road Network



BUS RAPID TRANSIT SYSTEM - MYSORE



- Mix of Radial & Grid - 1773 km
- 8 Radial Roads
- Two Rings
  - Intermediate Ring Road
  - Outer Ring Road
- Sub - Arterial Roads
- Collector Road



# Growth of City



TITLE:  
MYSORE CITY  
LANDUSE MAP - 2001

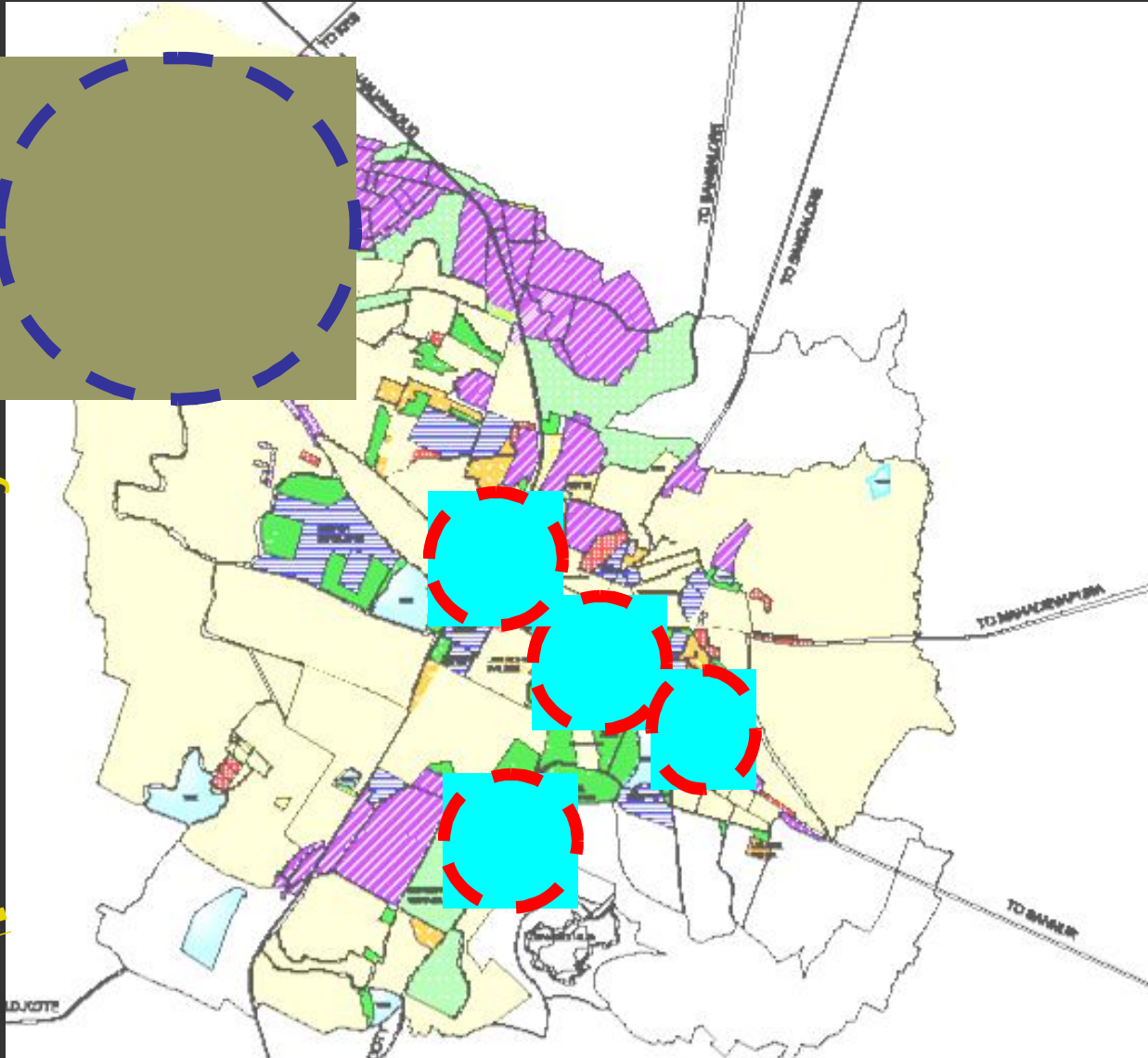
Major Tourism  
Nodes

IT Zone

Direction of  
growth of city

BUS RAPID TRANSIT SYSTEM - MYSORE

Growth of city





# Land Use



**BUS RAPID TRANSIT SYSTEM - MYSORE**

	2001		2011	
Category	Area in ha	% Area	Area in ha	% Area
Residential	2,849.91	39.9	6,097.87	43.45
Commercial	215.95	3.02	344.07	2.45
Industrial	962.61	13.48	1855.05	13.22
Park/ Open spaces	981.7	13.74	1055.05	7.52
Public semi-public	639.69	8.96	1180.78	8.41
Transportation	1,150.27	16.1	2,380.56	16.96
Public utility	36.48	0.51	43.35	0.31
Water sheet	143.99	2.02	178.95	1.27
Agricultural	162.33	2.27	898.99	6.41
<b>TOTAL</b>	<b>9,992.76</b>	<b>100</b>	<b>15,669.49</b>	<b>100</b>



# About KSRTC



**BUS RAPID TRANSIT SYSTEM - MYSORE**

- Operates over 6100 Buses and over 5700 Schedules
- Largest Volvo bus fleet in India
- One of the few STU's in India continuously making profits for past 5 years
- Recipient of several National & International Awards for Efficiency, Dependability and Safety
- Pioneer in E-ticketing & E-reservations (AWATAR)



# KSRTC in Mysore



KSRTC is the Only Public Transport Service Provider in the City

<b>BUS RAPID TRANSIT SYSTEM - MYSORE</b>	▪ <b>No. of City Depot &amp; Terminals</b>	2 each
	▪ <b>No. of Schedules</b>	232
	▪ <b>Distance operated / Day (City + Sub Urban)</b>	56127 km
	▪ <b>Total Trips / Day</b>	4384
	▪ <b>Average Load Factor</b>	86.30%
	▪ <b>No. of Passengers Carried / Day</b>	1.79 lakhs
	▪ <b>Average Bus Route Length</b>	11.2 km
	▪ <b>Speed</b>	17-19 km/hour
	▪ <b>Bus stop spacing</b>	450-1000 m

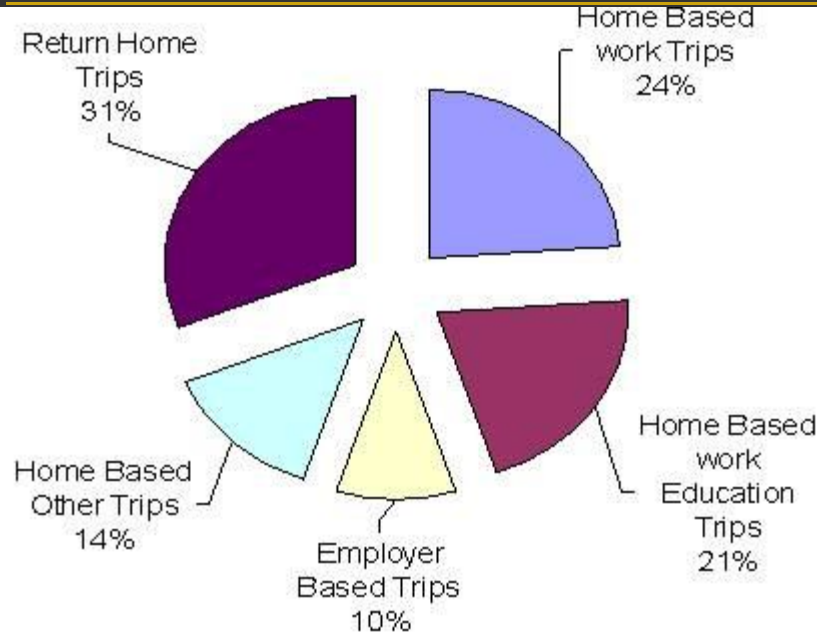


# Public Transport Surveys



## O-D Survey

Trip Details	Average trips in %
1. Home Based work	24%
2. Home Based work Education	21%
3. Employer Based	10%
4. Home Based Other Trips	14%
5. Return Home Trips	31%



## Speed -Delay Survey

Journey Speed 15-23 kmph  
Average Speed 18 kmph



# Public Transport Surveys: PHPDT



**BUS RAPID TRANSIT SYSTEM - MYSORE**

Corridor	PHPDT Values (maximum)			
	2006	2008	2011	2015
C - 1	5960	6571	7607	9246
C - 2	3520	3881	4493	5461
C - 3	5555	6124	7090	8617
C - 4	3760	4145	4799	5833

**Public Transport Demand is likely to Increase over the Years**



# Why BRTS in Mysore



- **To meet increasing travel demand**
  - **To avoid future traffic congestion (lessons from Bangalore City)**
- **To encourage use of public transport**
  - **Need for systematic planning, operation and management of public transport**
- **BRT- cost-effective system, flexible, high quality transit services**



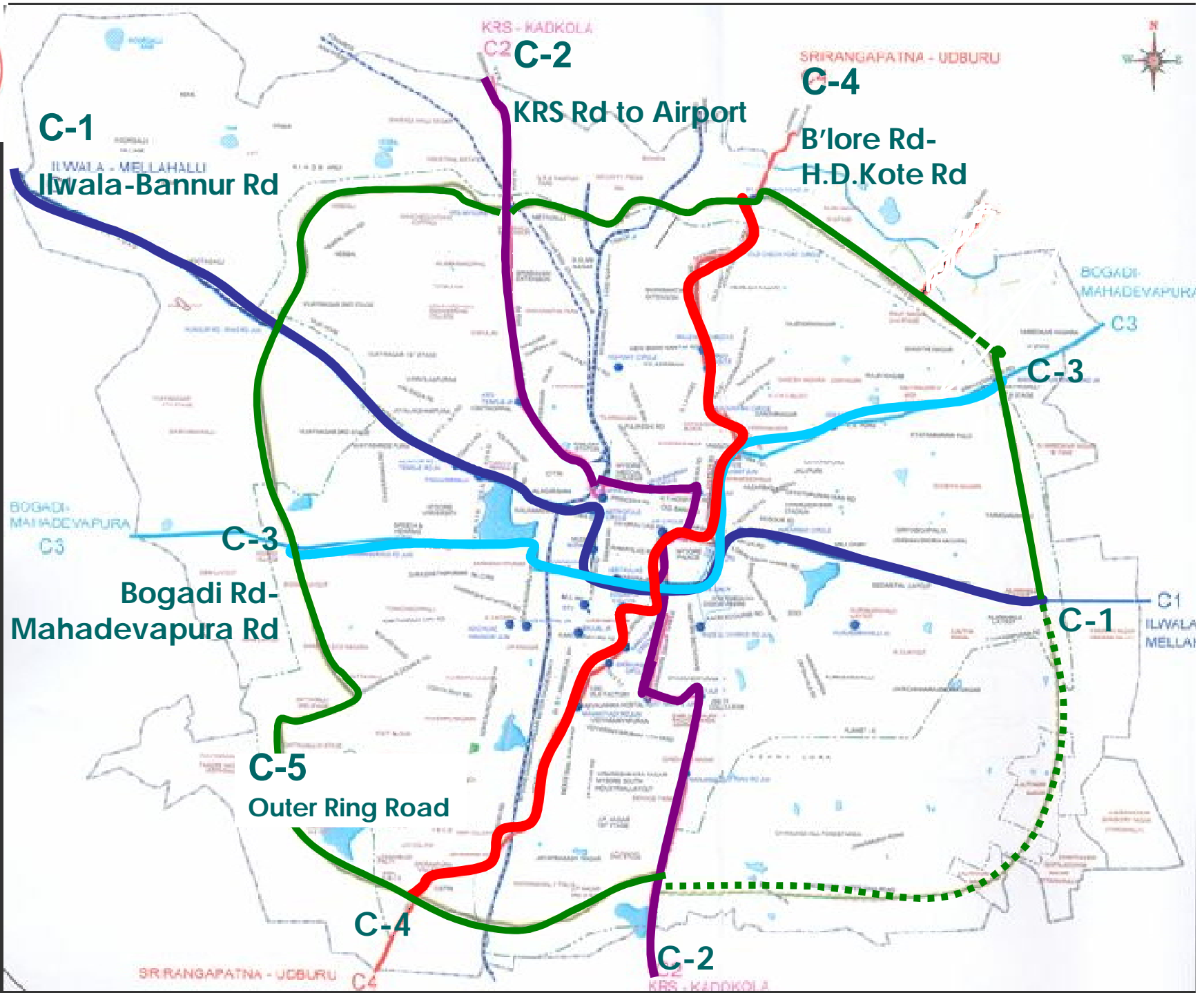
# Corridor Length



		STAGE - I	STAGE - II
	Details	Length (Km)	Length (Km)
C - 1	Ilwala to Bannur Road (ORR Junction)	23.90	—
C - 2	KRS to Airport	36.00	—
C - 3	Bogadi Road to Mahadevapura Road (ORR to ORR)	—	13.40
C - 4	Bangalore Road to H.D. Kote Road (ORR to ORR)	—	15.10
C - 5	Outer Ring Road (ORR)	—	45.00
Total		59.90	73.50
Grand total		133.40	



**BUS RAPID TRANSIT SYSTEM - MYSORE**  
**BRT Corridors**

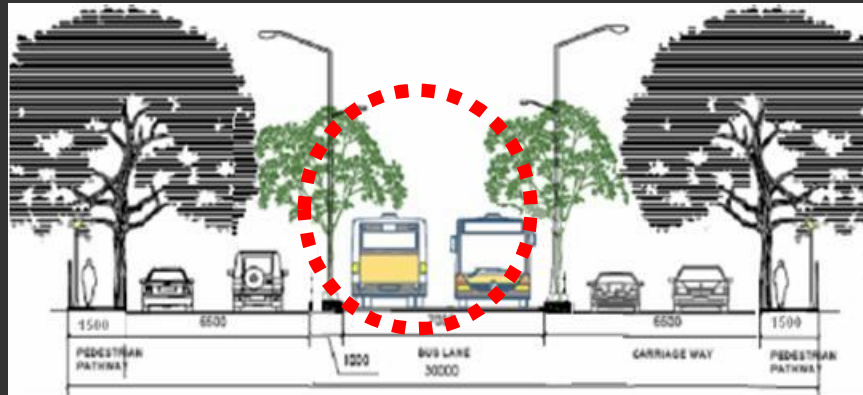




# Concept Design



BUS RAPID TRANSIT SYSTEM - MYSORE



Median Lane - 7.5m wth

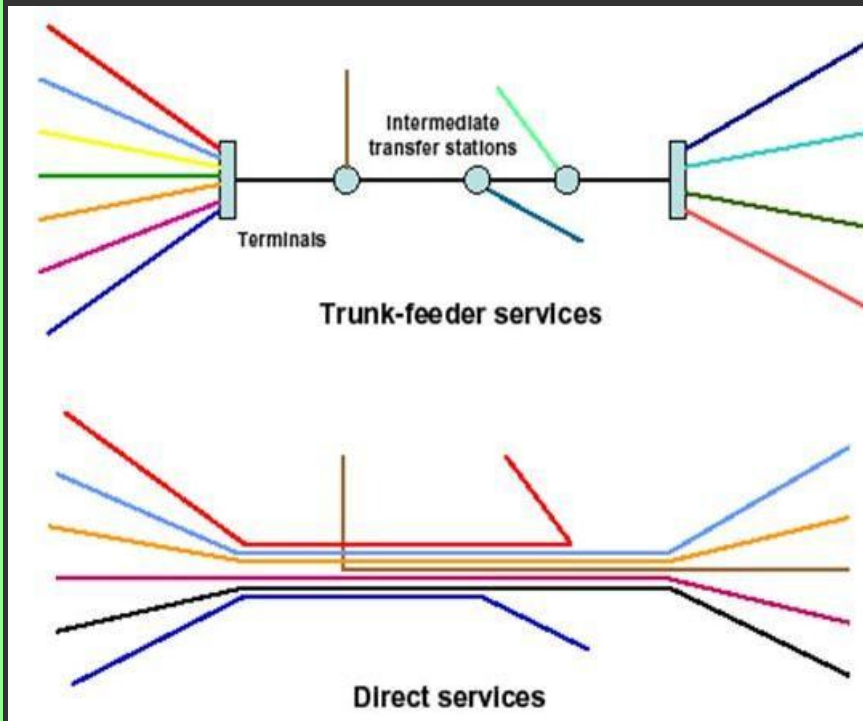
Direct Services

Bus stop locations at junctions-  
(70Mts away)- 2.5m wide

Priority Signals for buses

Vehicles- Low Floor, high  
capacity, BSII standards

Integrated with major  
transportation nodes



Support infrastructure

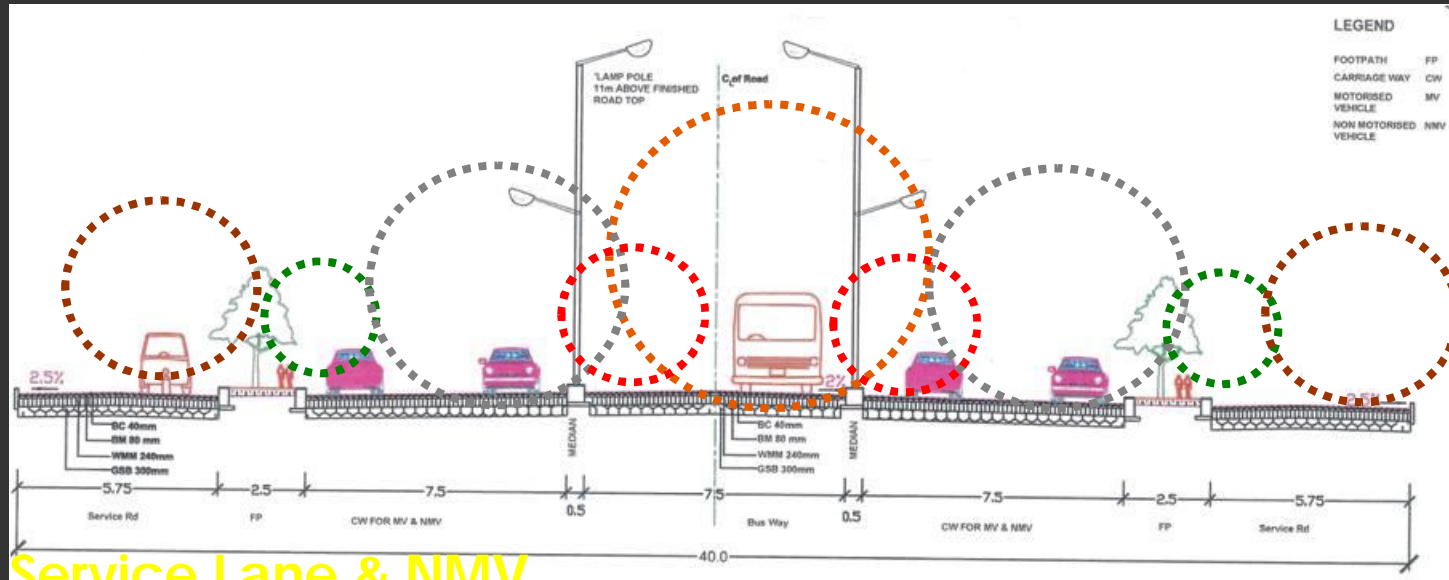
- ❑ Street lights
- ❑ Footpath- 1m to 2.5m
- ❑ Other components- ITS, PIS etc



# Typical Cross Sections



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5.75 M – Service Lane & NMV

2.5 M - Pedestrian Pathway

7.5 M – Mixed Traffic Lane

0.5 M – Median

2.5M- at Bus Stops

3.75 + 3.75M – BRT Lane



# Typical Junction



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# Bus Shelter



BUS RAPID TRANSIT SYSTEM - MYSORE

70Mts from the intersection

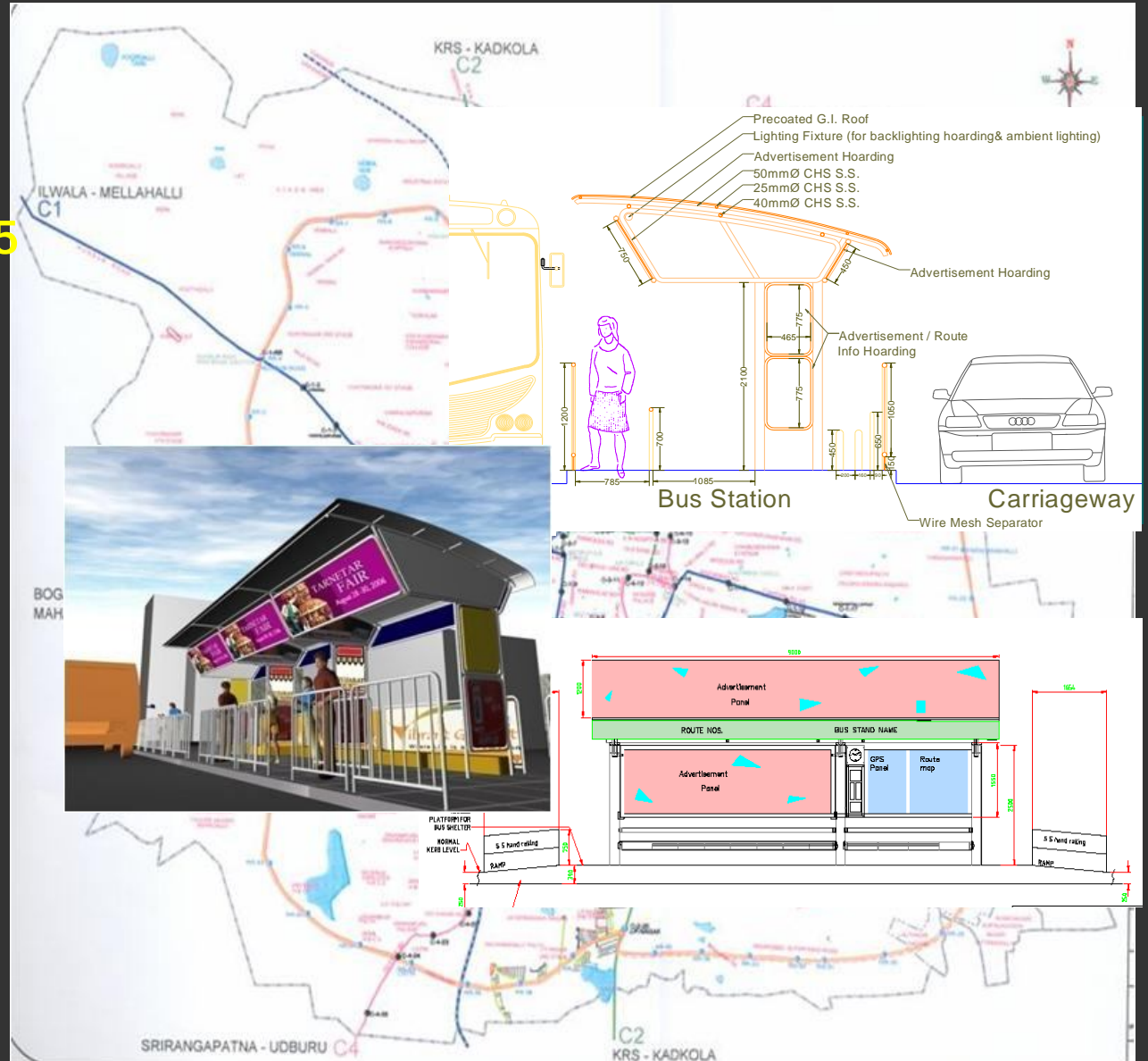
Platforms (2 to 2.5 m wide)

25m length to accommodate (atleast 2 buses)

Level Boarding / Alighting

Disabled Friendly

Controlled Passenger Dispersal





# Bus Technology

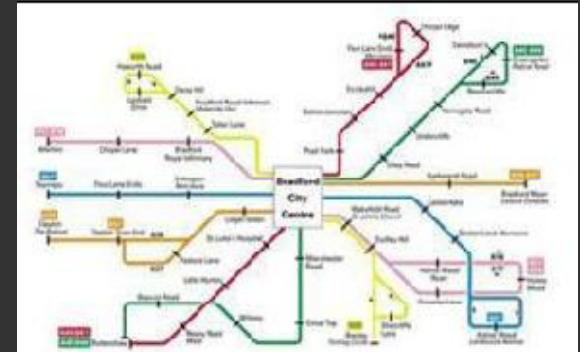
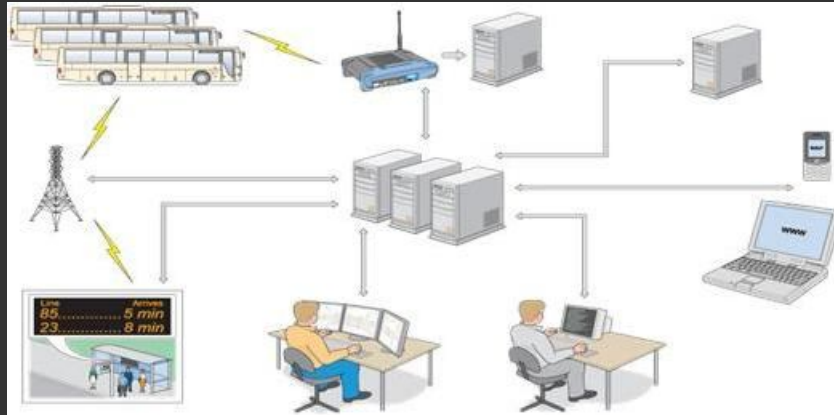


BUS RAPID TRANSIT SYSTEM - MYSORE





# ITS & PIS Salient Features



BUS RAPID TRANSIT SYSTEM - MYSORE

- Vehicle prioritisation
- Signal Timing/ Phasing
- Traffic Signal priority
- Driver assist and automation technology
- Collision warning
- Vehicle guidance- GPS based
- Operation management
- Passenger information- electronic/non-electronic equipment
- Traveler information
- Safety and security technology



# Fare Collection



BUS RAPID TRANSIT SYSTEM - MYSORE

- **On board ticketing – Stage 1**
  - Electronic ticketing system
  - Paper based
- **Off-board ticketing**
  - At bus stations/ bus shelters
  - On-board verification
    - Reduces dwell time
    - Open & transparent fare collection
- **Pre-paid ticketing**
  - At kiosks, bus stations, railway stations etc
  - Smart card based ticketing system



Electronic ticketing system





# BRTS Fleet Calculation



BUS RAPID TRANSIT SYSTEM - MYSORE

## Corridor – Wise Details

	Corridor - 1	Corridor - 2	Corridor - 3	Corridor - 4
Corridor Length	14.7 km	12.9 km	13.4 km	15.1 km
PHPDT	6571	3881	6124	4145
No. of Buses	50	27	43	33

**TOTAL- 153**



# Mysore City After BRT



**BUS RAPID TRANSIT SYSTEM - MYSORE**



# Overall Project Cost



BUS RAPID TRANSIT SYSTEM - MYSORE

(All figures in Rs. Crores)

Component	Stage 1	Stage 2
Year of Implementation	2008	2010
Civil Works	328.27	392.45
ITS System, GPS, Control Room	9.99	11.03
<b>Total Base Cost</b>	<b>338.26</b>	<b>403.48</b>
Rolling stock (@ Rs 0.20 Crores per bus)		
153 buses for Stage 1	30.60	
100 buses for Stage 2		20.00
Other miscellaneous costs	49.72	59.31
<b>Total Cost</b>	<b>418.58</b>	<b>482.79</b>



## Stakeholders and their Roles: Existing Scenario



- **KSRTC: Implementing Agency**  
construction and maintenance of stations;  
transport operations
- **MUDA, MCC, and PWD:** construction and  
maintenance of roads
- **RTO & Traffic Police:** traffic regulation and  
management
- **KUWSDB:** construction and maintenance of  
drainage
- **CHESCOM:** power distribution, street lighting etc.
- **KRDCL :** Infrastructure works of BRT



# Institutional frame work



## Exclusive SPV Comprising

- Mysore City Corporation
- Mysore Urban Development Authority.
- Karnataka Urban Infrastructure Development Corporation.
- Karnataka Road Development Corporation Limited.
- Karnataka Public Work Department
- Karnataka State Road Transport Corporation
- Ministry Of Urban Development (G.O.I)

## Rolling Stock Operation

- Karnataka Road Transport Corporation



# Governance and Management



## Operations System Planning

### Policy & Regulation

#### Project Governing Body

- **Chairman: Chief Secretary**
- **Principal Secretary; UD, Finance, Transport, PWD**
- **Representatives from MoUD**
- **Member Convener: VC&MD, KSRTC**

SPV by KSRTC  
Mysore Rapid Transit System

- **Officers:**
  - **Project Director**
  - **General Manager (Infrastructure)**
  - **Dy. General Manager Mechanical Traffic**
  - **Others**

### Clearances Monitoring Enforcement

#### Project Steering Committee

- **Chairman: MD, KSRTC**
- **DC, Mysore**
- **MCC**
- **MUDA**
- **PWD**
- **Mysore Police**
- **Member Convener Project Director**

General Consultant

Construction: KRDCL

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**BUS RAPID TRANSIT SYSTEM - MYSORE**



**THANK YOU**