Urban Transport

Issues,Challenges and Strategies

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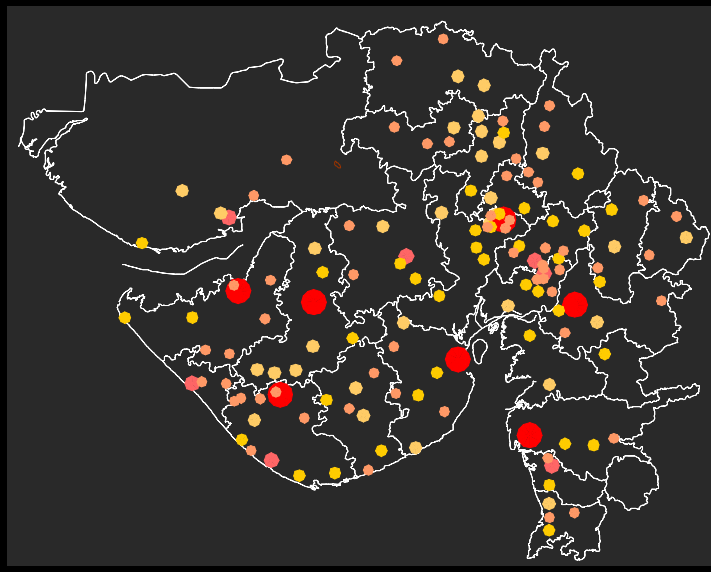
COVERAGE

1. Urbanization & Role of Urban Areas in Economic Development
2. Urban Transportation Systems
3. Status, Issues and concerns of Urban Transport Sector
4. Policies and strategies

1. Urbanization & Role of Urban Areas in Economic Development

1. 37% of Population of Gujarat Lives in 242 urban areas
2. Cities, the engines of economic growth, are places of innovation & diffusion
   a. Over 66% of State Income gets generated from urban areas.
   b. Ahmedabad alone generate about 17% of State income while accounting for 8% of the state population
   c. Surat accounts for 70% of the diamonds cut in the world.
   d. Towns like Jetpur, Verawal directly or indirectly contribute for 2-400 Cryr exports
3. Provide for well-being of the population (education, health, etc.,)
4. They are the face of a region to outside world



Urban Development Year - 2005

50% of Gujarat's population will live in cities by 2025.

2. Urban Transportation System

Cities are born, grow and sustain because of efficient transportation system.

Urban Transport through enhanced **Accessibility and Mobility, it enables**

- **Increase in efficiency and productivity**
- **Increase in access to amenities**
- **HHs to reduce travel expenditure (5 to 10% of improvement of the environment.**

BIGGER THE CITY – MORE COMPLEX THE URBAN TRANSPORT SITUATION

Gujarat Cities

Where do we stand in India?

No	State / Union territory*	Urban Population	% urbanization
	INDIA	**285,354,954**	**27.78**
	Delhi*	12,819,761	93.01
	Chandigarh*	808,796	89.78
	Pondicherry*	648,233	66.57
	Goa	668,869	49.77
	Mizoram	441,040	49.5
	Lakshadweep*	26,948	44.47
1	Tamil Nadu	27,241,553	43.86
2	Maharashtra	41,019,734	42.4
3	Gujarat	18,899,377	37.35
	Daman & Diu*	57,319	36.26
4	Karnataka	17,919,858	33.98
5	Punjab	8,245,566	33.95

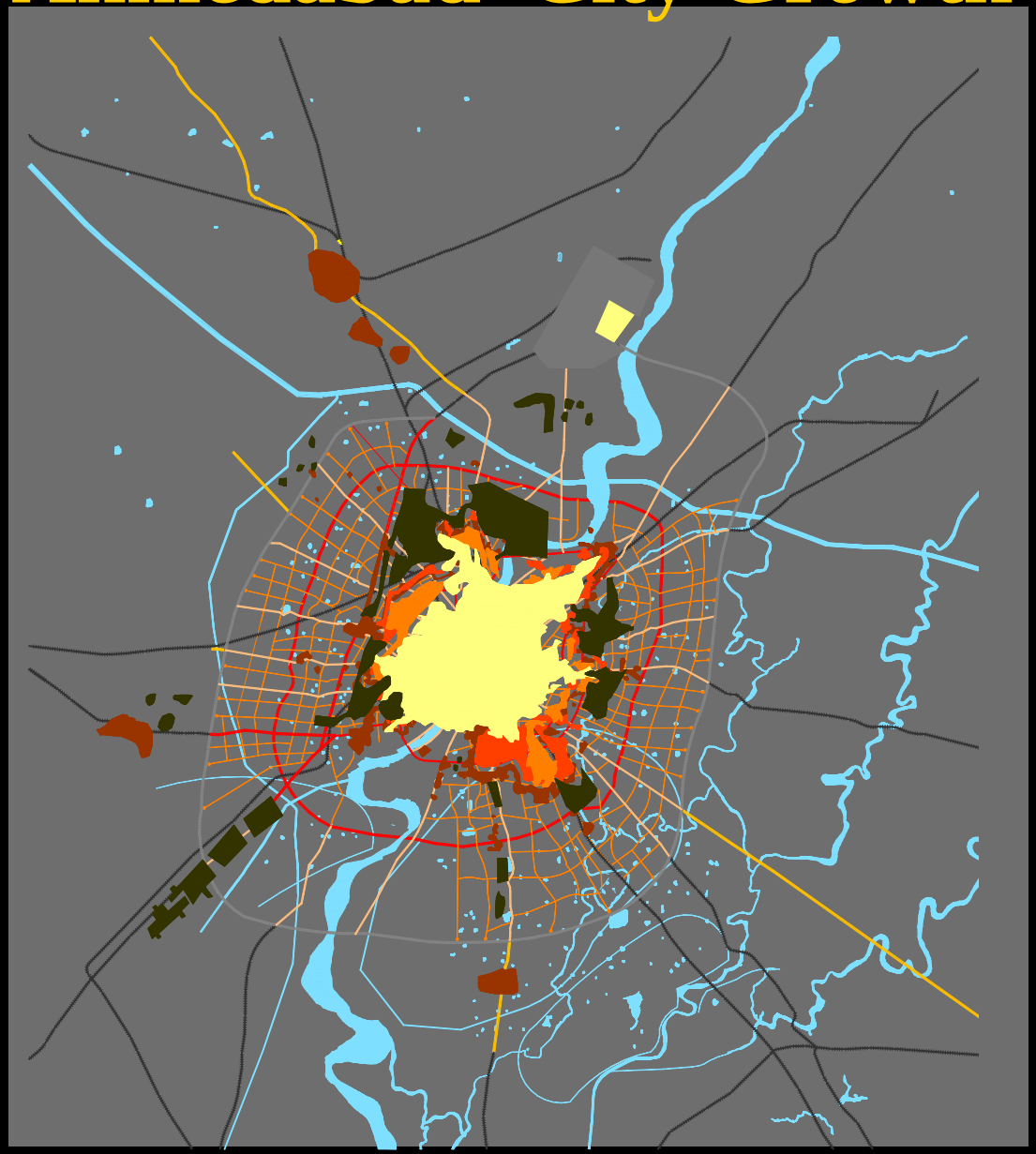
Census 2001

Rank	Urban Agglomeration	Persons
1	Greater Mumbai	16,368,084
2	Kolkata	13,216,546
3	Delhi	12,791,458
4	Chennai	6,424,624
5	Bangalore	5,686,844
6	Hyderabad	5,533,640
7	Ahmedabad	4,519,278
8	Pune	3,755,525
9	Surat	2,811,466
10	Kanpur	2,690,486
11	Jaipur	2,324,319
12	Lucknow	2,266,933
13	Nagpur	2,122,965
14	Patna	1,707,429
15	Indore	1,639,044
16	Vadodara	1,492,398

- **Average speed : less than 20km/hr**

In 1991 Gujarat was second most urbanized state.
Ahmedabad is 7th largest city in India.

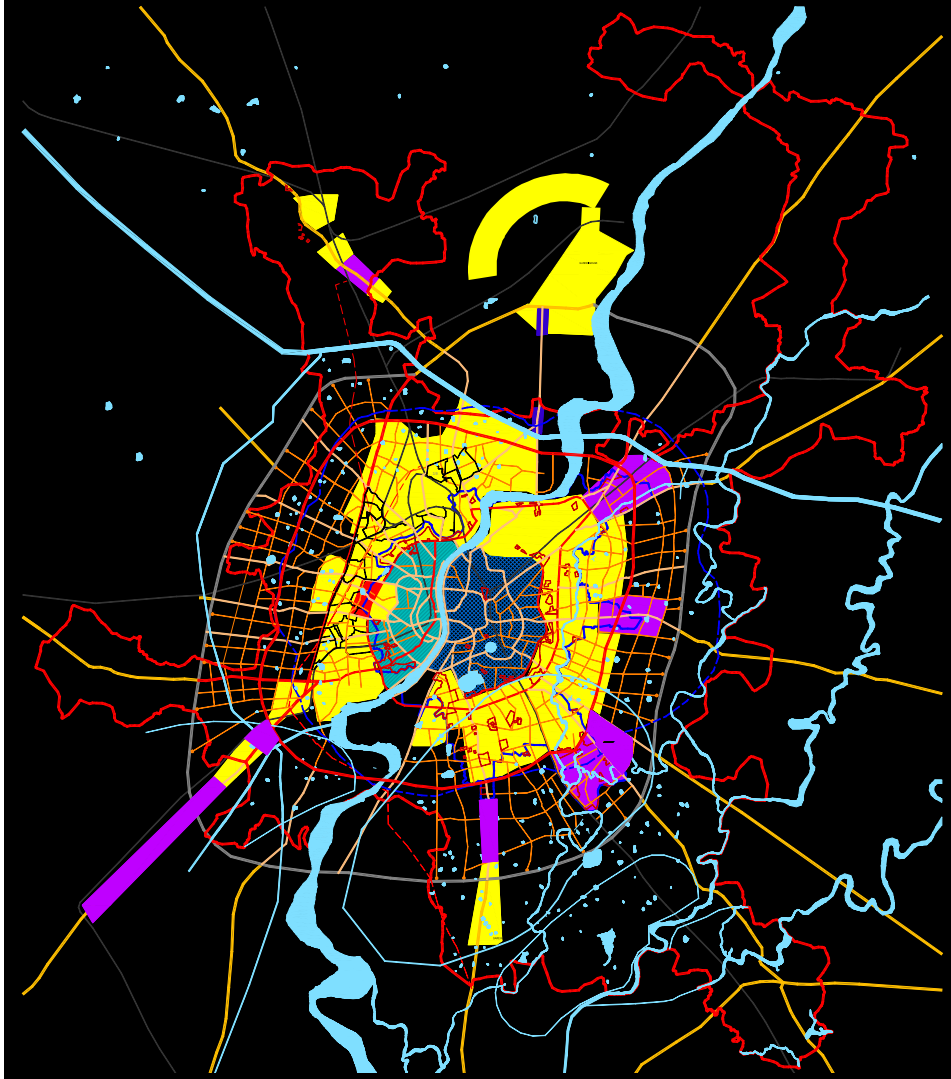
Ahmedabad City Growth



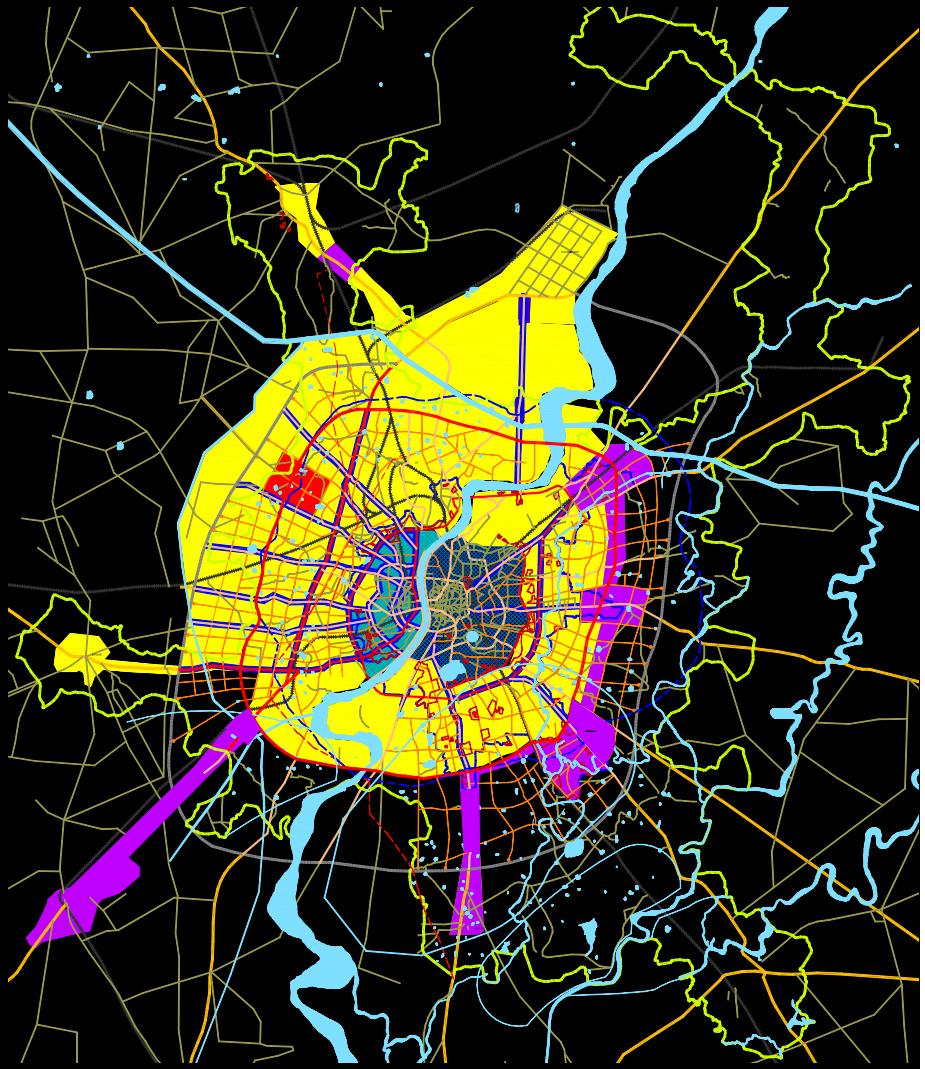
Year	Population (Lakhs)	Area (Sq.kms)
1971	17.73	90
1981	21.15	130
1991	34.37	165
2001	45.14	241
2011 (Forecast)	65.00	400

Ahmedabad 2011 & 2035

65 Lakh People - 400 Sq. Km



1 Crore People - 700 Sq. Km



Urban Transportation System

- Network
- Vehicles
- Management System

3. Urban Transport – Status and Issues

Issues

- Very rapid increase in motorization
- Poor Network Planning & Management
- Limited provision of public transport facility
- Lack of support for pedestrians and bicycles
- Inadequate Traffic Management
- Mix of slow and fast vehicles without segregation
- Uncoordinated management of urban land use/ transport
- Too many organizations making disjointed decisions

Traffic congestion is increasingly making our towns and cities inefficient and unsafe

Urban Transport – Status and Issues

1. Very rapid increase in motorization

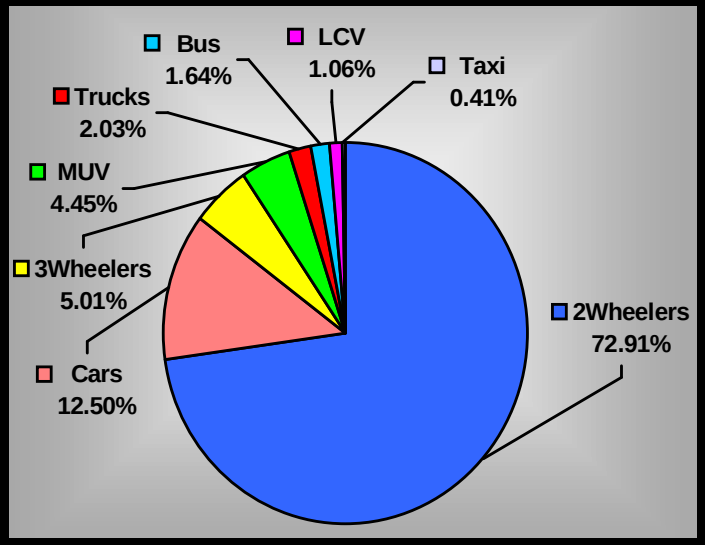
- Vehicles rapidly rising
  - 1961 43 thousand
  - 1971 1.5 lakhs
  - 1981 5.2 lakhs
  - 1991 20.5 lakhs
  - 2001, 55.7 lakhs
  - 2002, 60.0 lakhs
  - 2003 65.1 lakhs
  - 2004 70.9 lakhs
  - 5 lakh added annually
- Ahmedabad,
  - 14 Vehicles / 10 families
- Traffic management inadequate

Traffic congestion is increasingly making our towns and cities inefficient and unsafe

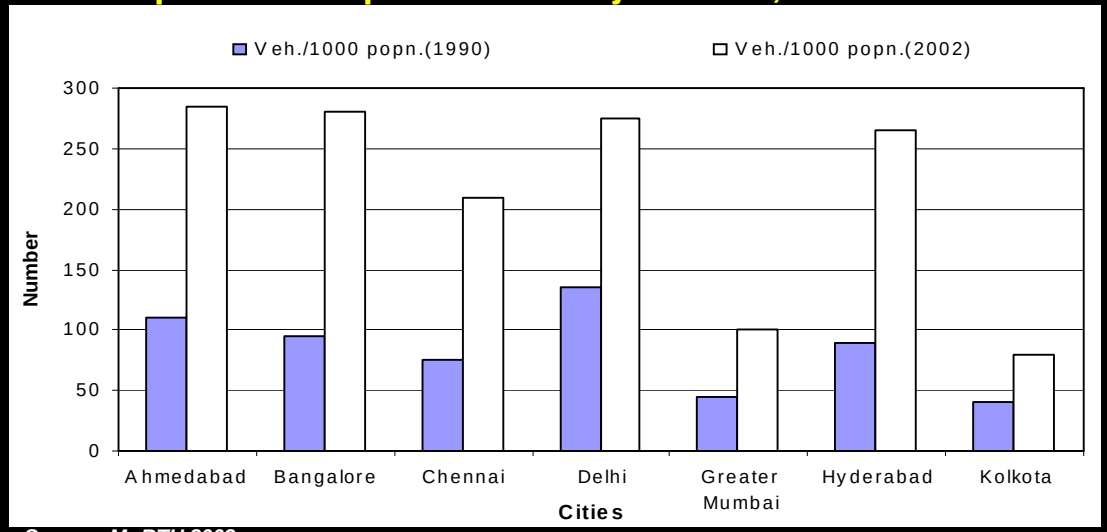
Urban Transport – Status and Issues

Vehicular Growth and Composition

Year	India		Gujarat		Ahmedabad	
	Total	Decadal Growth	Total	Decadal Growth	Total	Decadal Growth
1961	665000		43230		N.A.	
1971	1865000	180%	147967	242%	62922	
1981	5391000	189%	522451	253%	165620	163%
1991	21474000	298%	2052391	292%	538182	225%
2001	54991000	156%	5576040	172%	1210278	125%

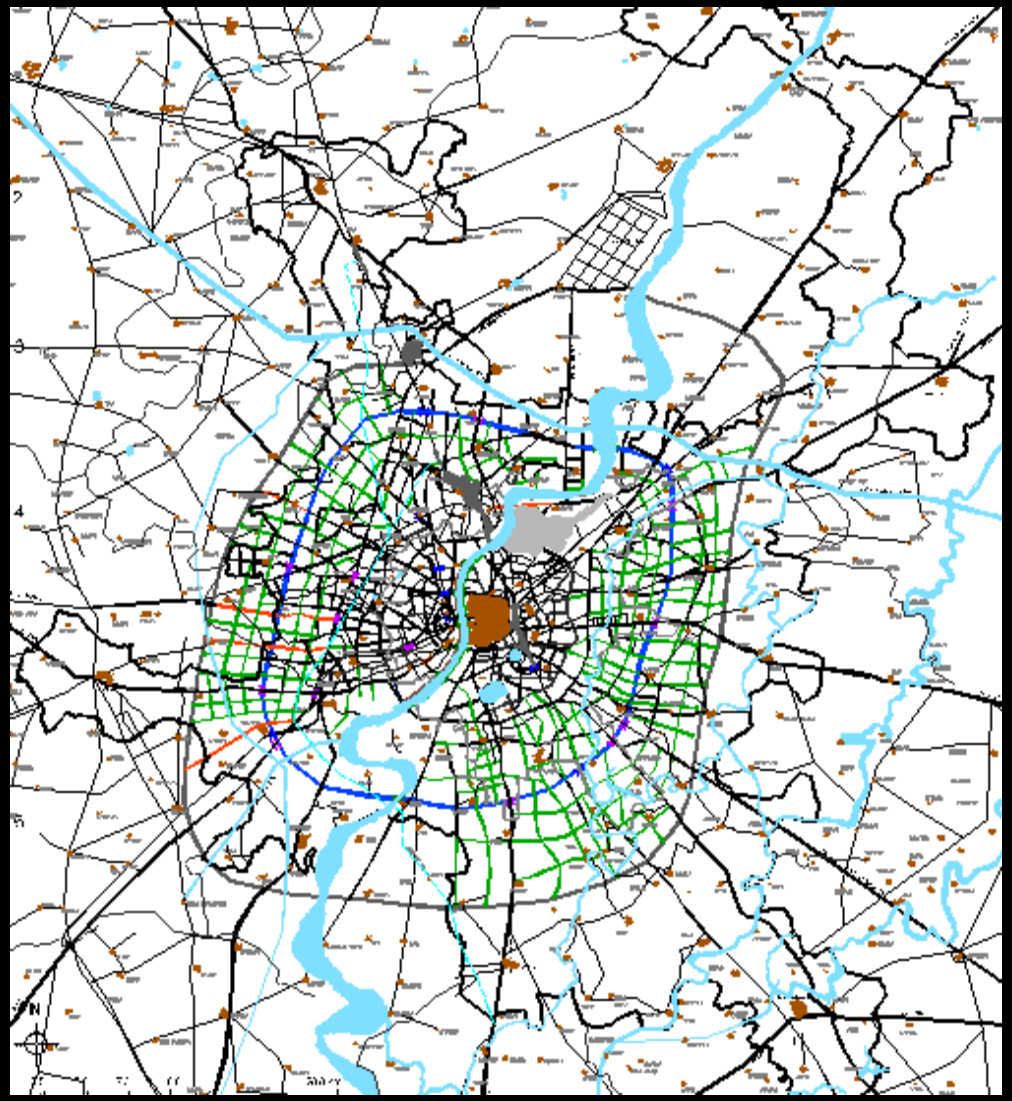


Vehicle per 1000 Population in Major Cities, 1990 and 2002



Source: MoRTH 2003

Urban Transport – Status and Issues
Road Network



Road Length

Study area – 3478 Km

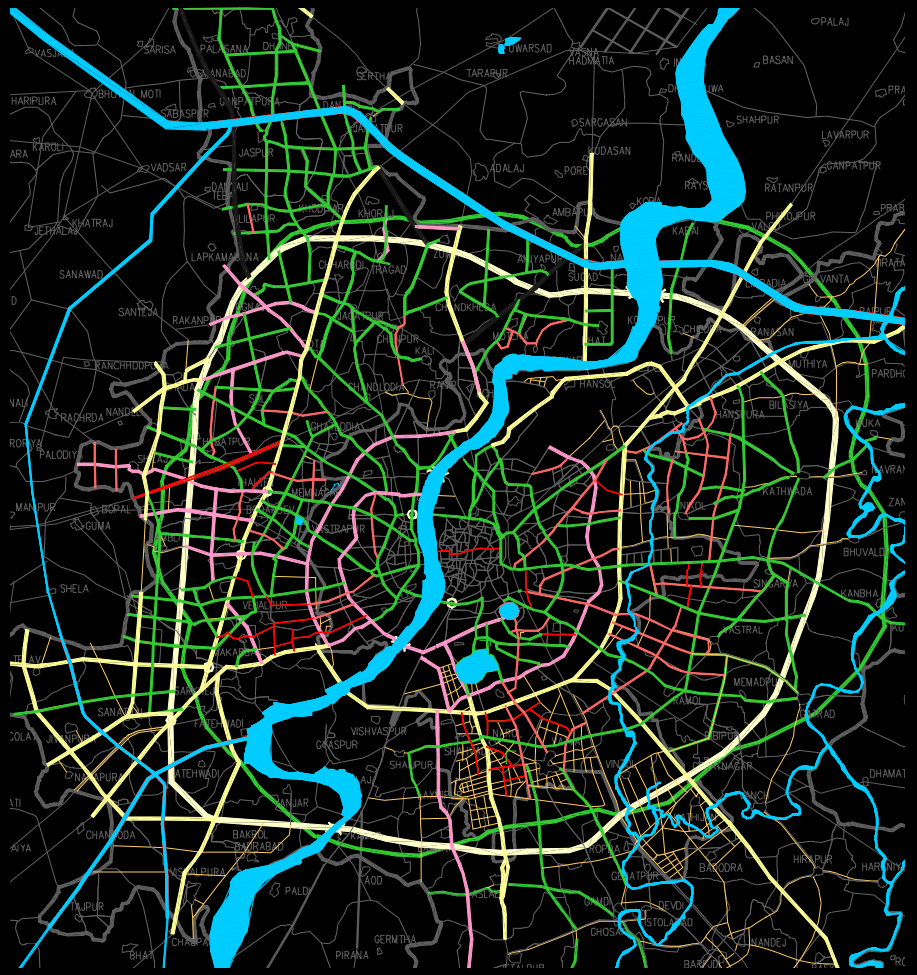
AMC – 1278 Km

AUDA – 340 Km

Urban Transport – Status and Issues

2. Poor Network Planning & Management

- 8-9% Area under roads (as against 15% recommendation)
- Missing Road Hierarchy
  - Arterial
  - Collector/Distributor
  - Local
- Upgrade existing Rural Roads
- Walled/Old City/Villages Ignored
- Multi-arm Junctions
- Improper Alignment
- Transportation Planning – Not integrated as part of DP or TPS
- No Special Division with TPVD or MCs



Poor Road Network Planning – Cause for perpetual Traffic Problem

Urban Transport – Status and Issues

2. Poor Network Planning & Management

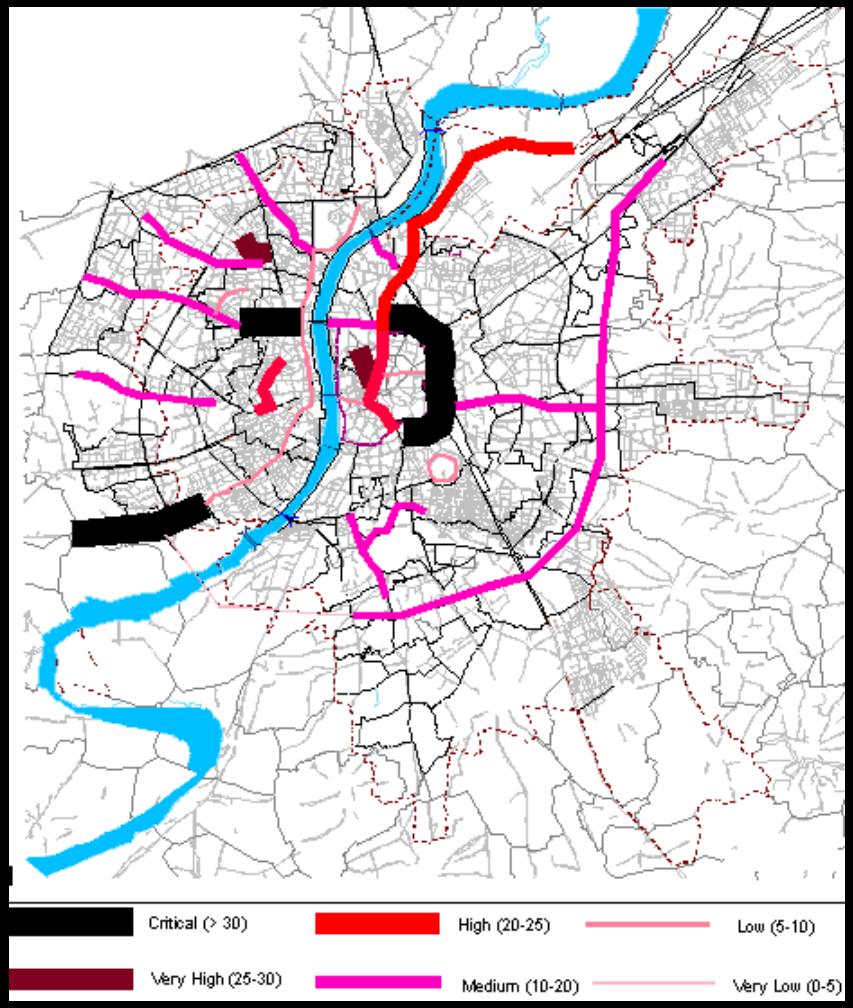
- Utilities Integration
  - Drainage
  - Telephone
  - Electricity
  - Fibre-optic cables etc.,
  - Public Conveniences
- Integration of Street Vending

Poor Road Network Planning – Cause for perpetual Damage

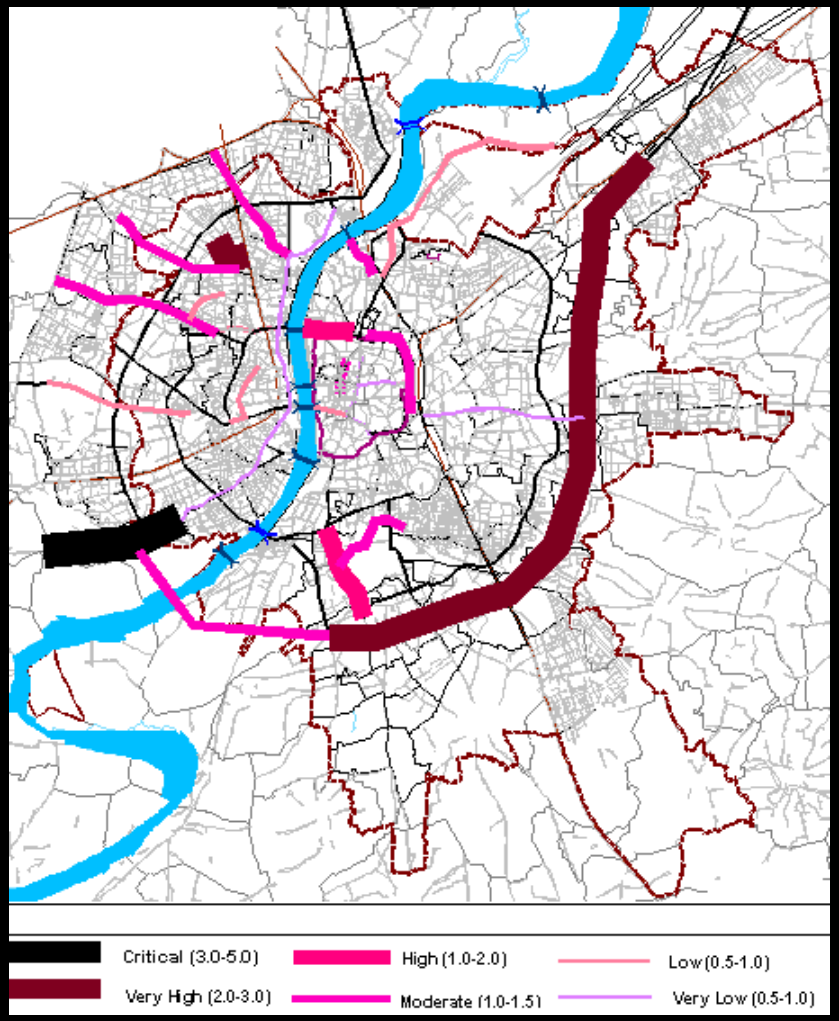
Urban Transport – Status and Issues

2. Poor Network Planning & Management

Road Network



Accident rate



Fatality rate

Urban Transport – Status and Issues

2. Poor Network Planning & Management

- Streets not carefully designed
- Streets not fully paved
- Haphazard traffic movement
- Right of way under utilized
- Unsafe for pedestrians
- Dust contributes to pollution
- Encourages encroachment

All streets have to be designed and paved to make them clean, efficient, safe and aesthetically pleasing

Urban Transport – Status and Issues

3. Walking and Cycling

- Poor person's mode of transport
- In Ahmedabad
- 42% HH Earn< Rs.5000 /Month
- 22% Owned no vehicles
- 34% Owned only bicycles
- 39% 2-Wheelers +
- 5% Cars +
- 17 % bicycle trips & 37 % walking trips
- No footpaths, no bicycle lanes
- Neglected, unsafe, uncomfortable
- 65% fatal accidents in Ahmedabad kill pedestrians / cyclists

The cleanest modes are also the most unsafe

Urban Transport – Status and Issues

4. Poor Public Transportation

- **Public transport only in:**
  - **Ahmedabad (AMTS)**
  - **Surat (GSRTC)**
  - **Vadodara (GSRTC)**
  - **Rajkot (GSRTC)**
  - **Jamnagar (Private)**
  - **Bhavnagar (Private)**
- **Bus fleets old and limited**
- **High Operating costs**
- **Large staff**
- **Poor service, sub optimal routes**
- Land use planning is not coordinated with the transportation planning and vice versa

Cities	% trips by Public Transport	Buses/lakh population
Ahmedabad	7	8
Surat	7.6	9
Vadodara	9.5	13
Rajkot	3.5	9

- Bombay - 85%
- Norm – 30 buses/lakh

System Enhancement through Private Participation – Feasible Solution

Urban Transport – Status and Issues

5 . Poor Traffic and Road Management

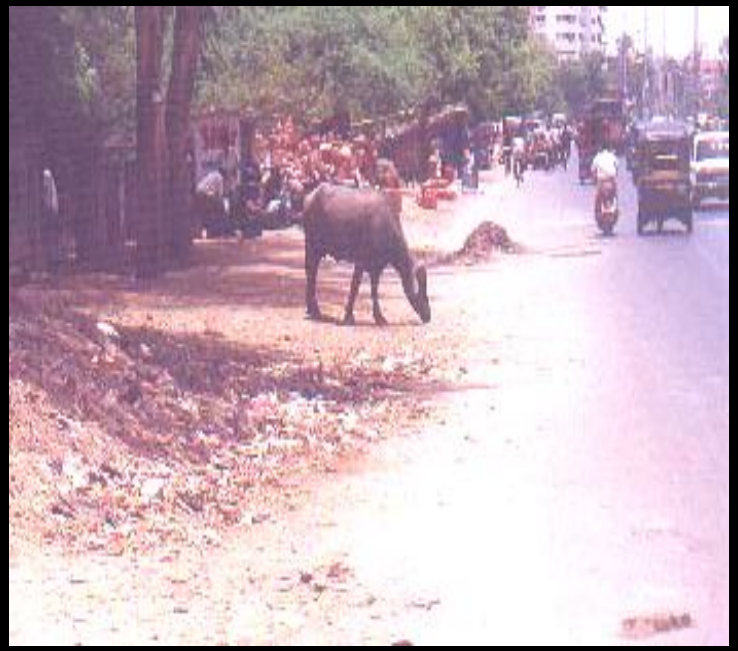
This is my place for Business……..

Can’t the society provide some space for me?

What happens if I extend a bit of my activity on the foot path?

I made the road. I use it the way I LIKE!

This is my grazing ground!



We also have the
Right of Way!

Can we be break inspectors!

Athithi Devo Bhava

Visitors parking outside GATE

Pay and Park

Why should I pay?

Public-Private Competition!

I demand the freedom to come at anytime and be anywhere!

Road or Meeting Hall…….!

In the middle of the road…….

People curse me for obstructing their way!

On the road……

I blessed you with the luxury of a house.
Then why me over here?

On the road……

Today is my son’s 15th birthday, I presented him a motor vehicle

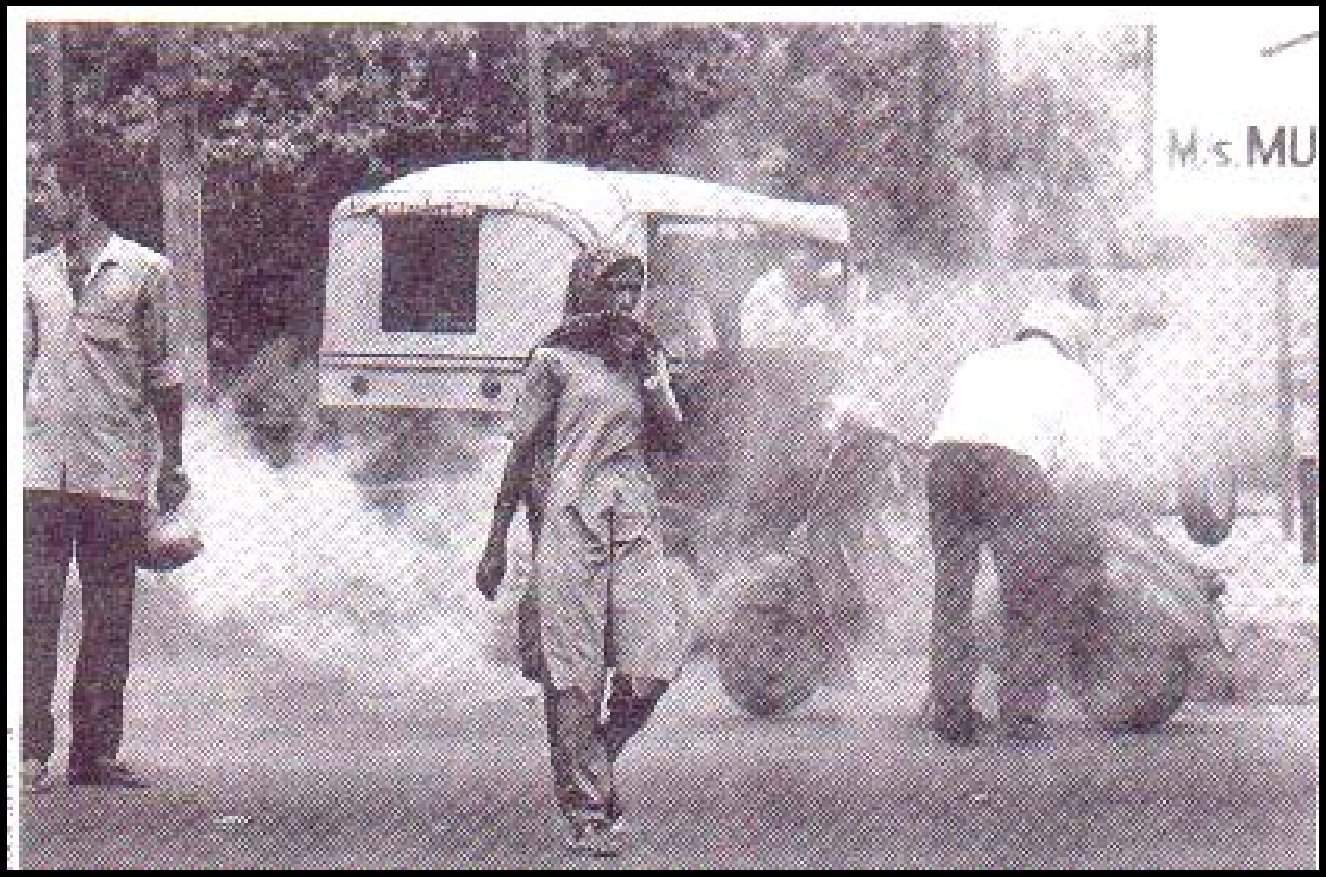
I am
Ahmedabad’s
Official
Family Vehicle

Can you see me?

We are a free country, we can walk anywhere

Lane Driving!!!
We believe in co-existence

I supply oxygen to you all!

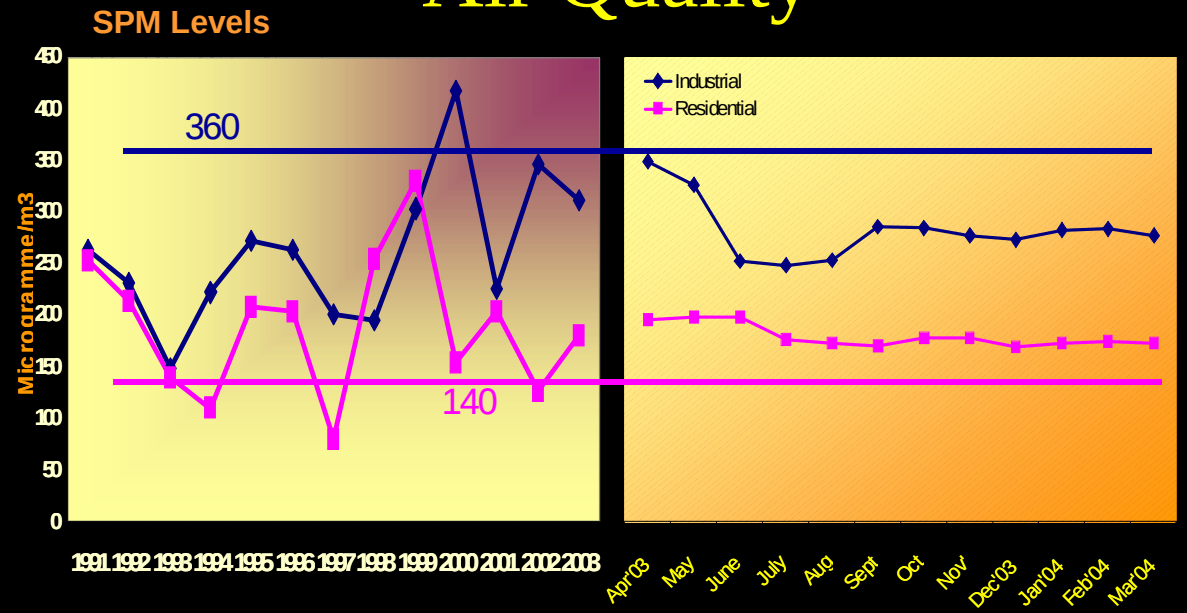


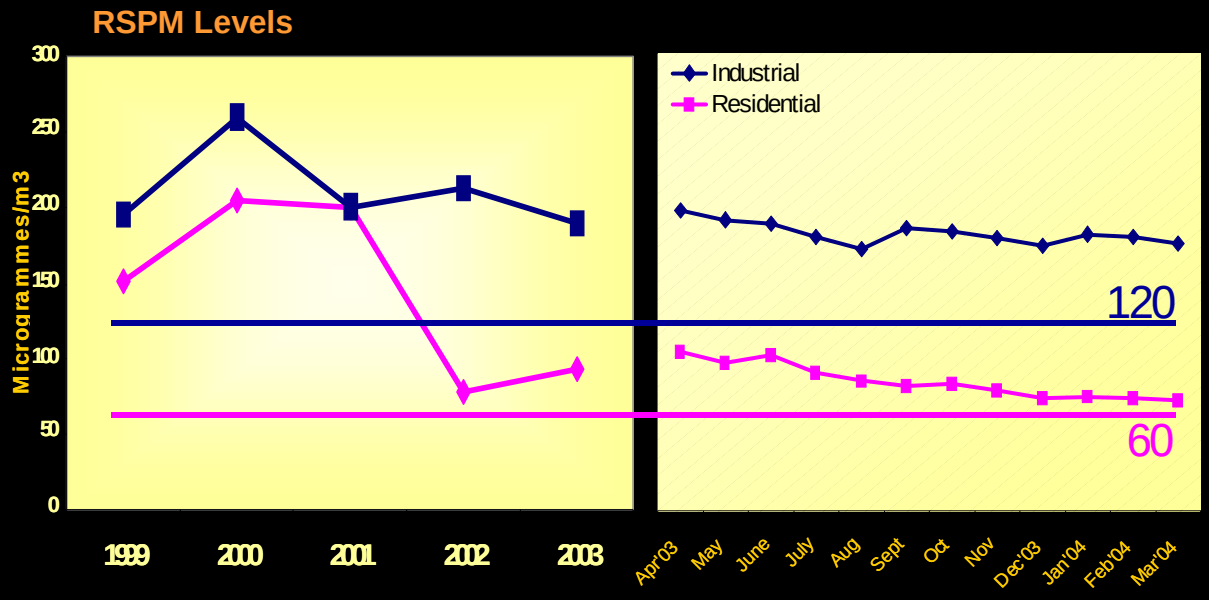
The result

'Raasta ma Baddhu Chaale siva Vahan'

Urban Transport – Status and Issues

Air Quality



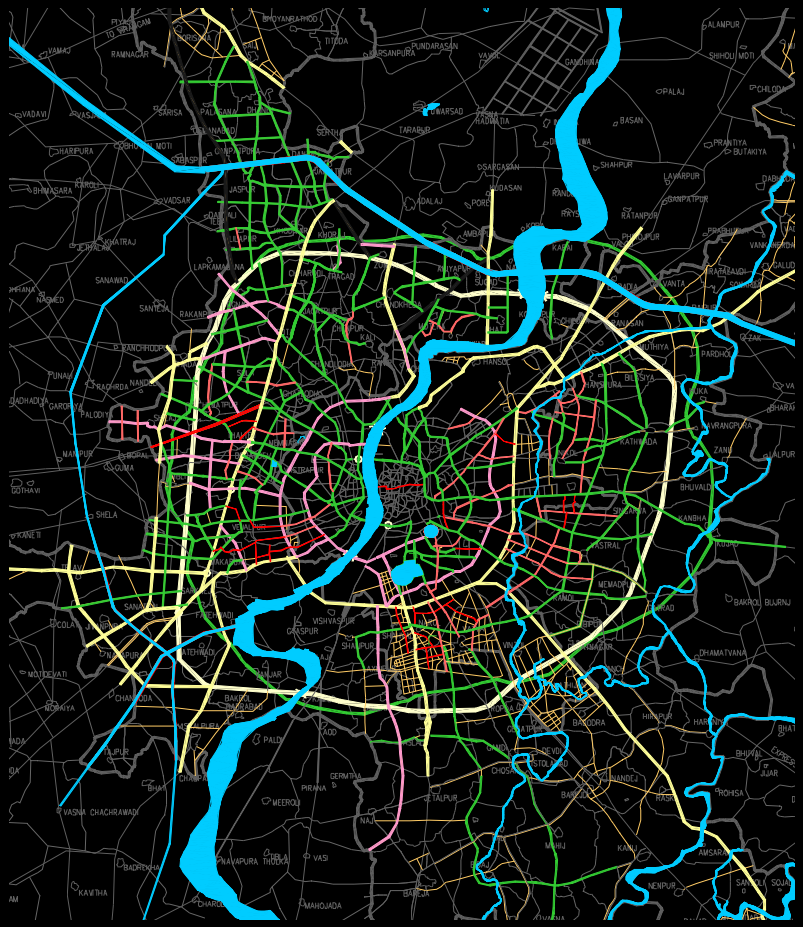


4. Urban Transport Strategies

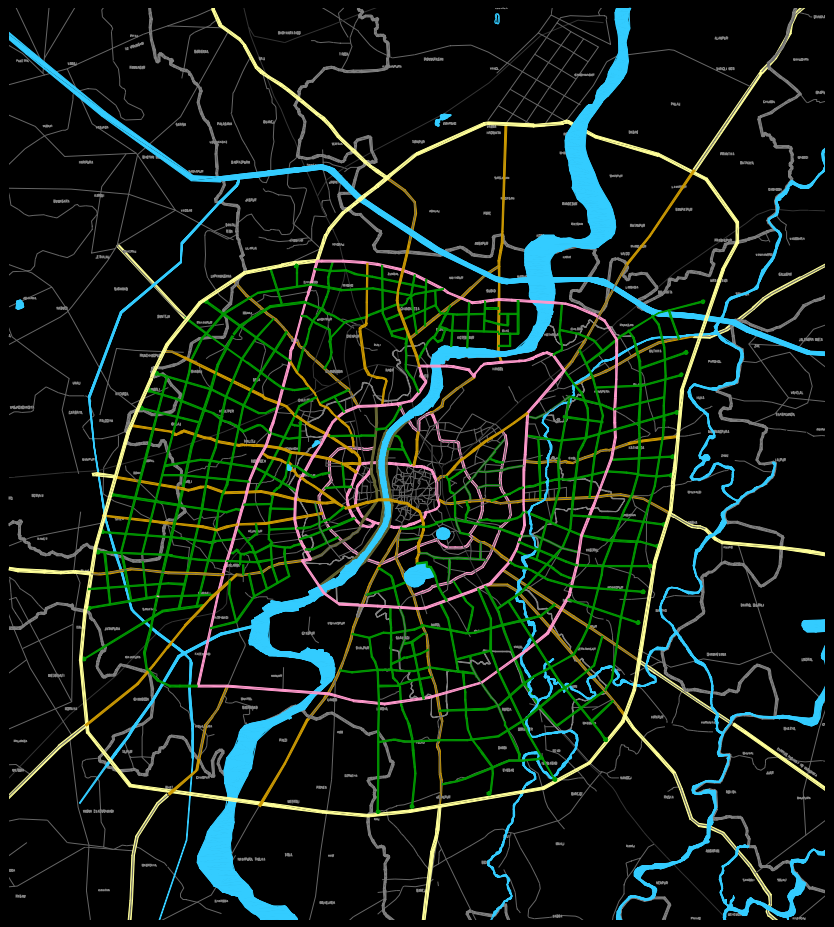
1. **Better Planning of Road network**
2. **Efficient Management of Road Network**
3. **Develop Integrated Mass Rapid Transit System which is safe, efficient and commuter friendly**
   a. Regular Bus System
   b. Bus Rapid transit System
   c. Suburban Rail System
   d. Metro Rail Transit system
4. **Strengthen institutional framework**
   a. Create a separate transport department within municipal body.
   b. Coordinating mechanism for different departments
   c. Street Management System
5. **Education**

Urban Transport Strategies

Integrate Transport Planning with DP & TPS



Published Road network



Recommended Road network

Urban Transport Strategies

Better Planning of STREETS

C.G. road before Redevelopment

C.G. road after Redevelopment

Urban Transport Strategies

Inner City Areas – Traffic Management Plans

Traffic Management plan

Synchronized traffic signal

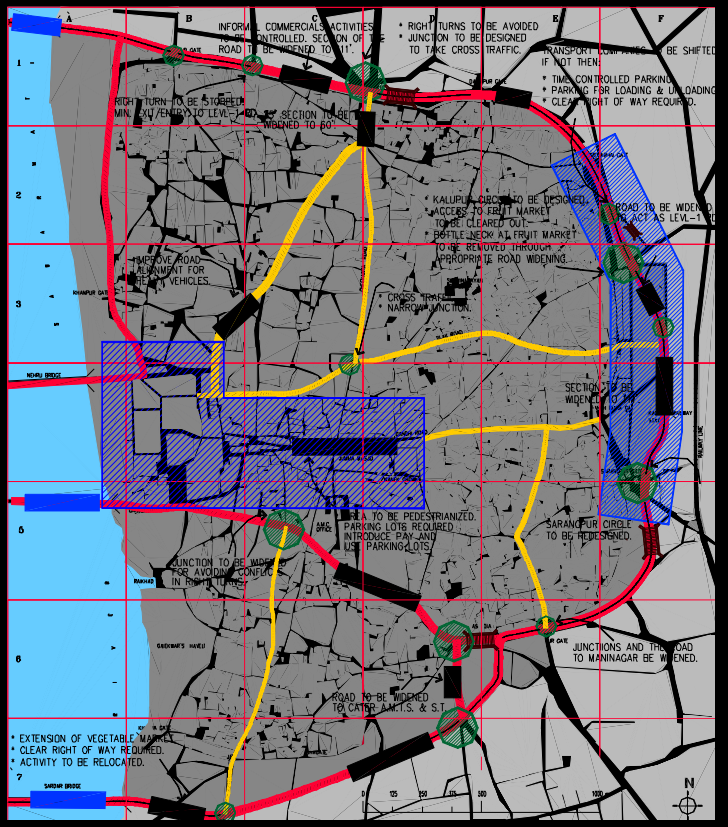
- **–Pedestrian zone**
- **–One way & two way system**

Parking Plan

- **–On-street paid parking**
- **–Off-street paid parking**

Accommodating the informal sector

- **–pedestrian precincts and hawking zones**



Road Hierarchy and junction improvement - Ahmedabad Walled City

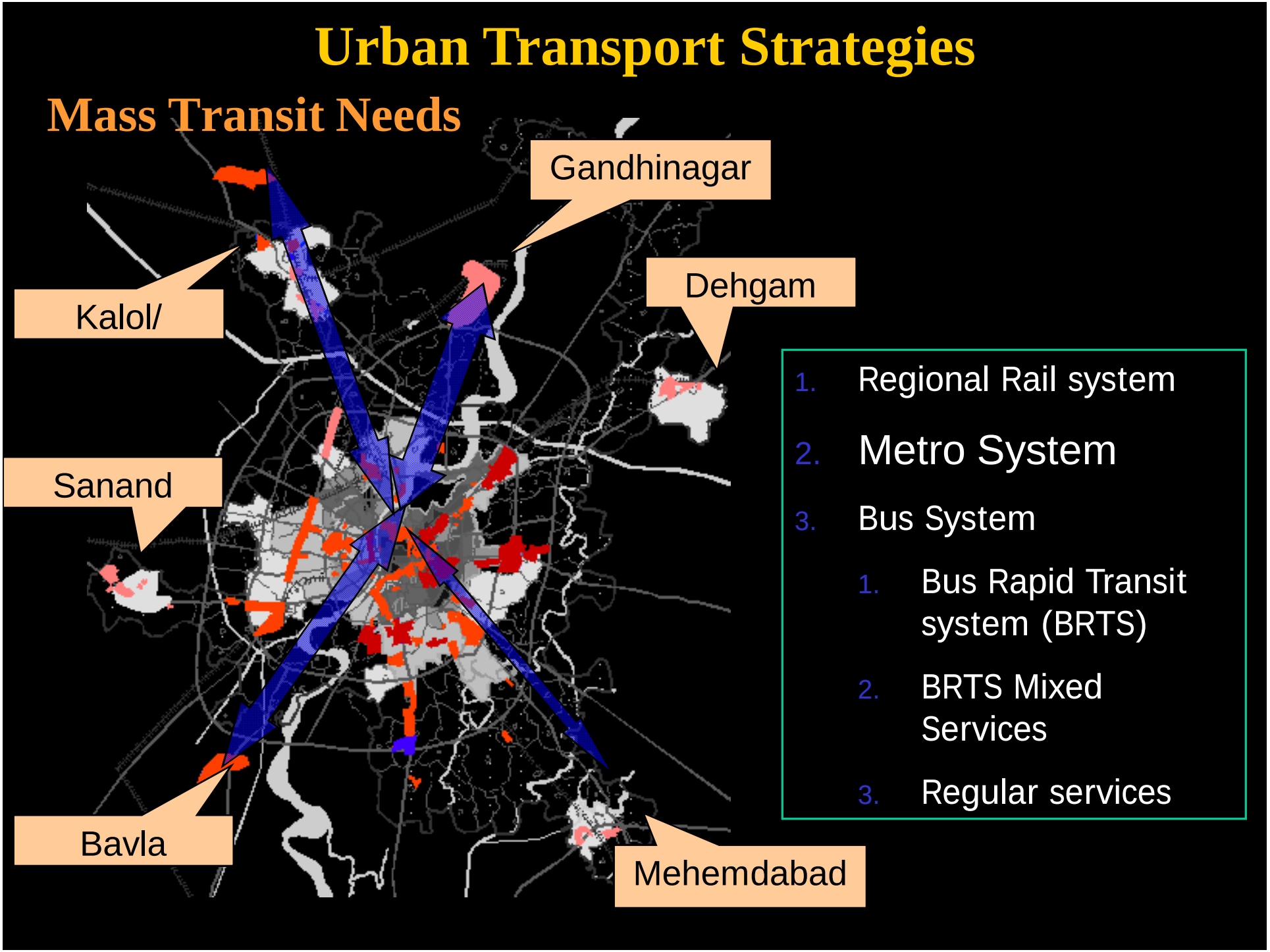
Urban Transport Strategies

Maintenance Management

- Annual maintenance cycles and task allocation systems
- Allocation of resources for maintenance based on priority
  - Hierarchical level in the road system
  - Frequency of complaints
  - Accident rate
- Online coordinated Information system with other agencies

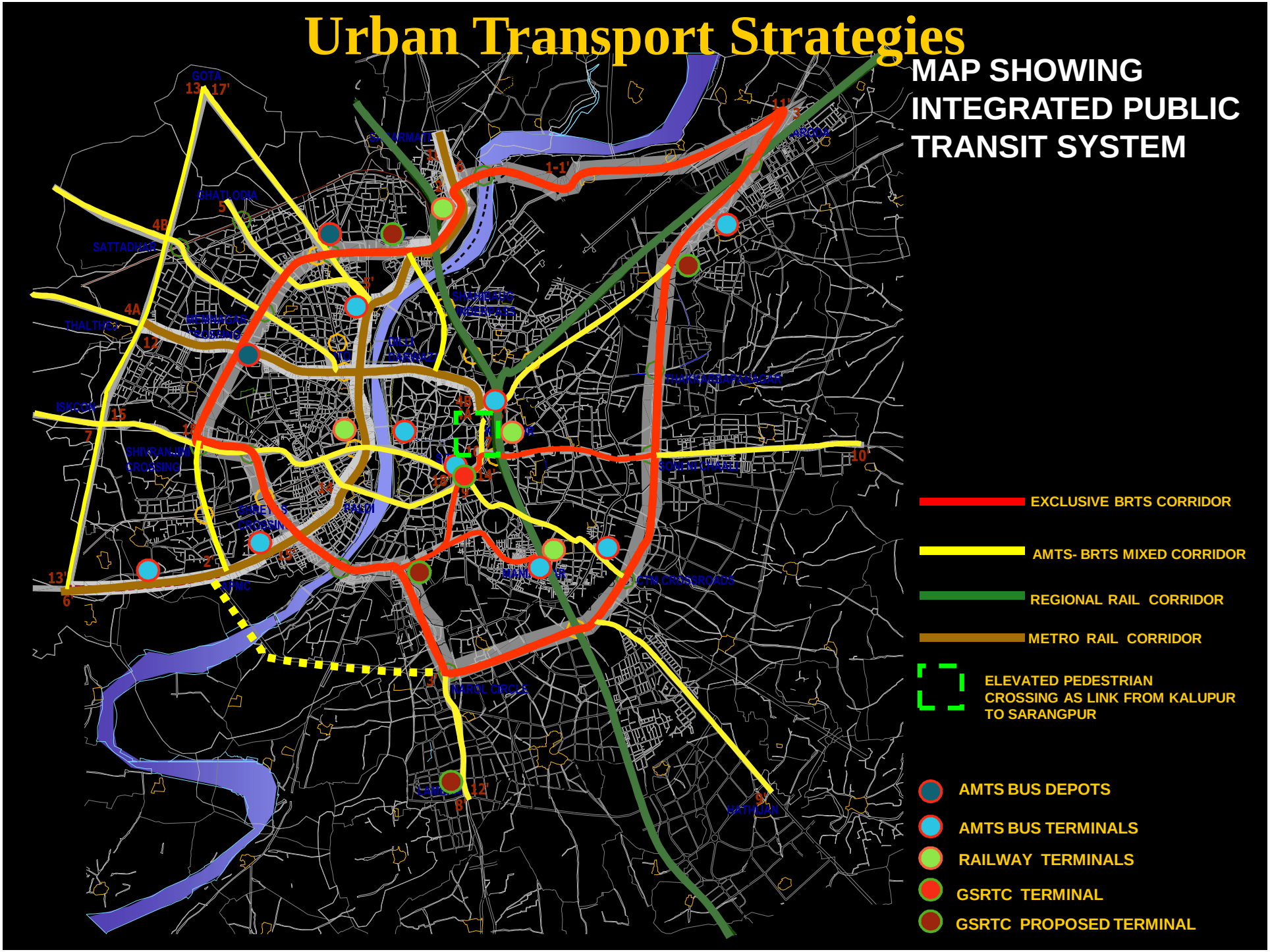
Urban Transport Strategies

Mass Transit Needs



1. Regional Rail system
2. Metro System
3. Bus System
    1. Bus Rapid Transit system (BRTS)
    2. BRTS Mixed Services
    3. Regular services

Urban Transport Strategies



Urban Transport Strategies

Modal Splits: International Experiences

City	PT Share (%)	
	Total	Modes
Bangkok, 2003	34	Bus/Metro
Athens	30	Rail/Bus
Paris	20	Rail/Bus
Greater Johannesburg	45	Rail/Bus
Seoul	65	Rail/Bus
Manila	49	Rail/Bus
Bogota	70	Rail/Bus (BRTS)
Rio De Janeiro (1996)	66	Bus/Metro/Rail
Sao Paulo (1997)	52	Rail/Bus
Mexico City (1994)	72	Rail/Bus

Urban Transport Strategies

Modal Splits: Indian Cities

City	Population (Million)	PT Share	
		% of Total	Modes
Delhi	12	60+	Bus/Metro
G. Mumbai	13	80+	Sub-urban Rail/Bus
Kolkatta	13	50*	Sub-urban Rail/Metro/Bus
Chennai	6.4	48	Sub-urban Rail/Bus
Bangalore	6.5	40.9	Bus
Hyderabad	5.5	44.0	Bus
Ahmedabad	4.5	7	Bus

Delhi

Mumbai

Chennai

Urban Transport Strategies

BRTS

Bus Rapid Transit is high-quality, customer-orientated transit that delivers fast, comfortable and low-cost urban mobility.

Segregated bus ways(20-35% increase in efficiency with new road designs, existing fleet)

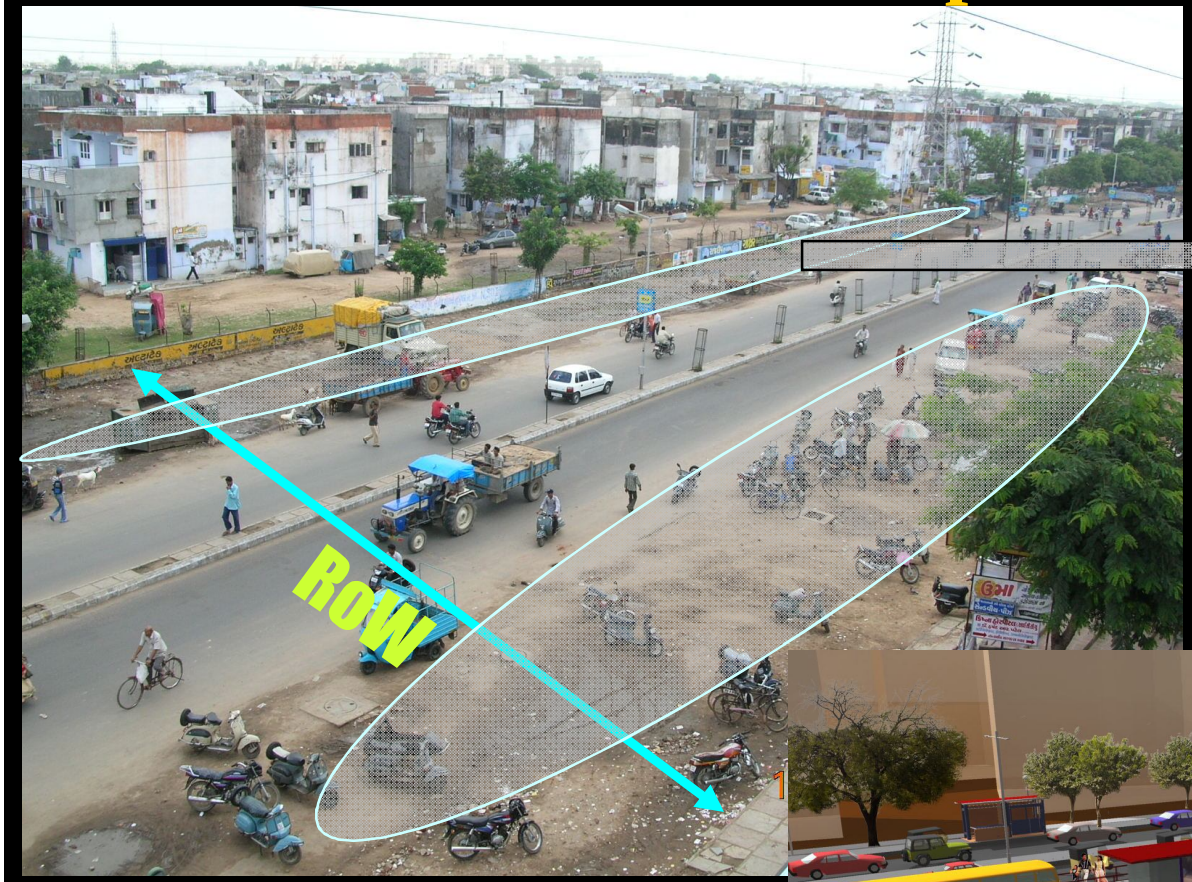
Comfortable shelters and stations Rapid boarding and alighting(vehicles and bus stops)(15% increase eff.)

Efficient fare collection

Modal integration

IT based vehicles and operations(20%)

Urban Transport Strategies



Existing RoW – 40 M

Used RoW – 18 M

Un Used RoW – 22 M

DESIGN PROPOSAL

Dual Lane Carriage Way on either side

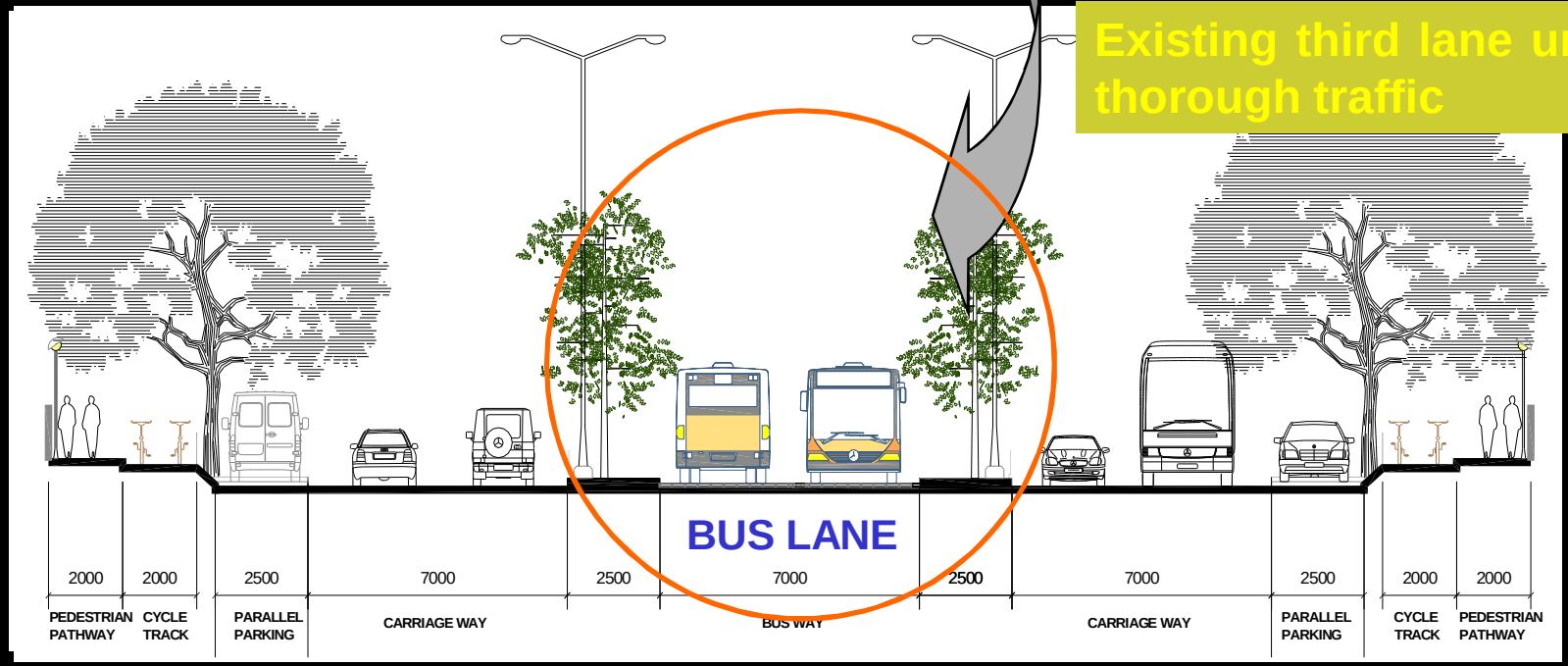
Development of Cycle Lane, Pedestrian Pathway, Parking

Urban Transport Strategies

3 Lane Carriage Way on either side

EXISTING ROAD SECTION FOR 40 M ROW (132’ RING ROAD)

Existing third lane unused for thorough traffic



PROPOSED ROAD SECTION FOR 40 M ROW (132’ RING ROAD)

Urban Transport Strategies

Rapid boarding & alighting

Lloyd Wright

Quito, Ecuador

Lloyd Wright

Porto Alegre, Brazil

Karl Fjellstrom

Curitiba, Brazil

Attention to details is the difference between BRT and typical bus system

Urban Transport Strategies

Public Private Partnership

- Buses Through Private Sector
- Road Infrastructure Development
  - Additional Development Rights
  - Recurrent revenues from selected roads
    - Advertisement revenues
      - displays on streetlights
      - specially designed kiosks/hoarding/neon signs
      - revenues can be maximized if displays inside private properties are controlled or taxed
  - Rent / License fees for vending kiosks
  - Parking fees


TITAN
TITAN

THANK YOU