नाशिक महानगरपालिका
Nashik Municipal Corporation

COMPREHENSIVE TRAFFIC AND TRANSPORTATION PLAN FOR NASHIK

PRESENTATION TO STAKEHOLDERS (AUGUST 2017)

Urban Mass Transit Company Limited

Structure of Presentation

- About the Study
- Nashik Today and Tomorrow
- Vision and Goals
- Mobility Plan Strategies and Proposals
- Project Costing
- Funding Options
- Institutional Setup

Objective of the Study

To prepare a Comprehensive Traffic and Transportation Plan (CTTP) for NMC for the plan period of 2016 – 2036 supporting the economic growth, and providing safe, affordable and seamless mobility for all the residents and tourists of Nashik, which in turn improves the quality of life.

Scope of Study

Task 1	• Define objectives of the Comprehensive Traffic and Transportation Plan and delineate planning area and horizon.
Task 2	• Primary and secondary data collection: households, land use, and travel demand data
Task 3	• Development and operation of Urban Transport Planning (UTP) model
Task 4	• Define vision, and Goals for transportation of Nashik
Task 5	• Long term Strategies and development of Proposals
Task 6	• Social, economic and environmental impact assessment of the proposed projects
Task 7	• Identification of a phased plan of transport investments and management proposals
Task 8	• Training and knowledge transfer

Study Area

- Study Area : **Nashik Municipal Corporation Limit**
- Population: ***14.86 Lakhs*** **(2011)**
- Geographical Area: **267.48 Sq. km**

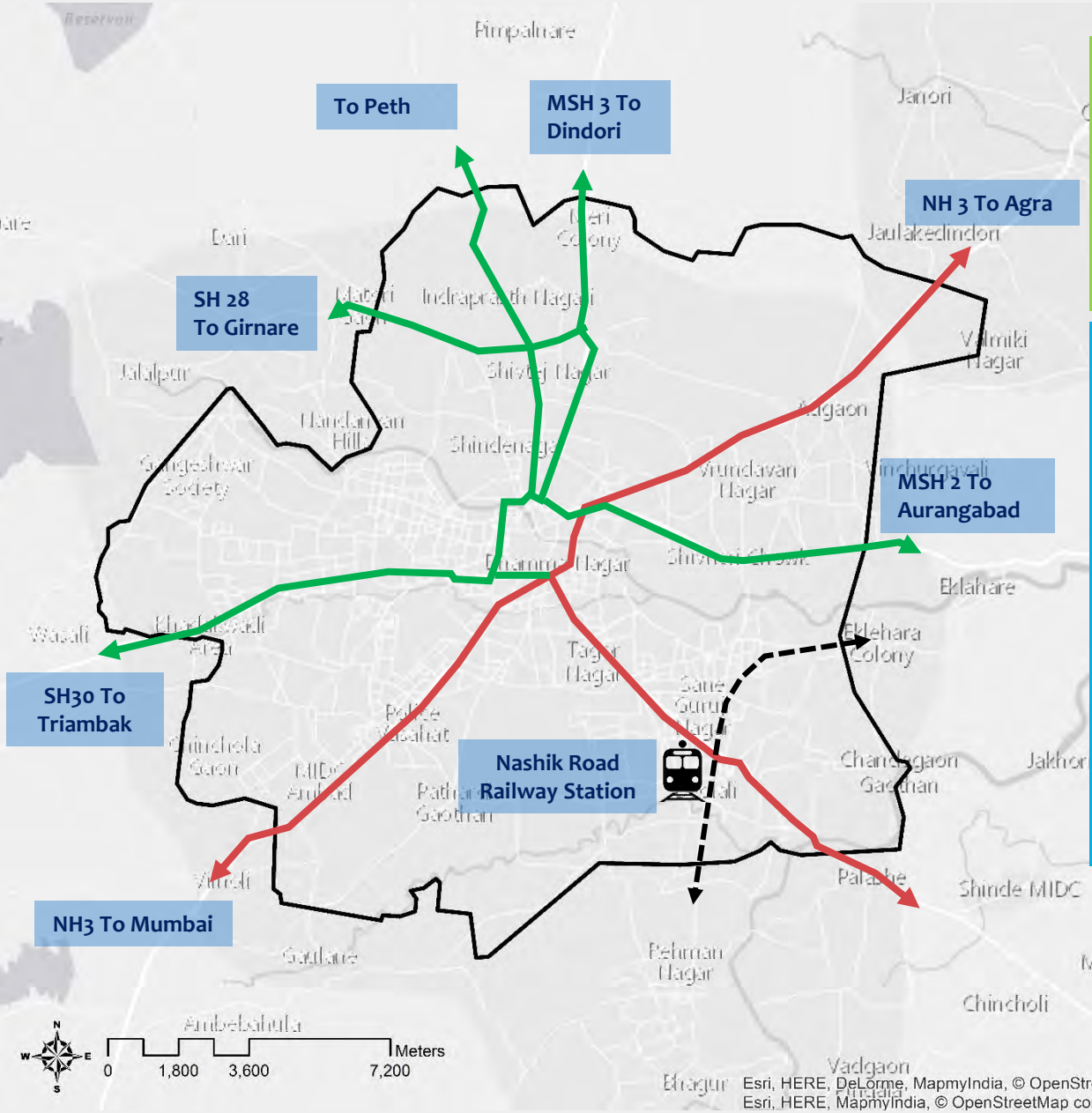
NMC Area comprises:

- **25 villages**

NMC area divided into **108** internal TAZs

External TAZ : **10**

Regional Connectivity



2 National Highways

NH-3: Mumbai-Agra Road

NH-50: Pune - Nashik Road

4 State Highways

MSH-2: Dharmpur-Peth-Nashik-Aurangabad

MSH-3: Nashik-Dindori

SH-28: Adgaon-Girnare-Javhar

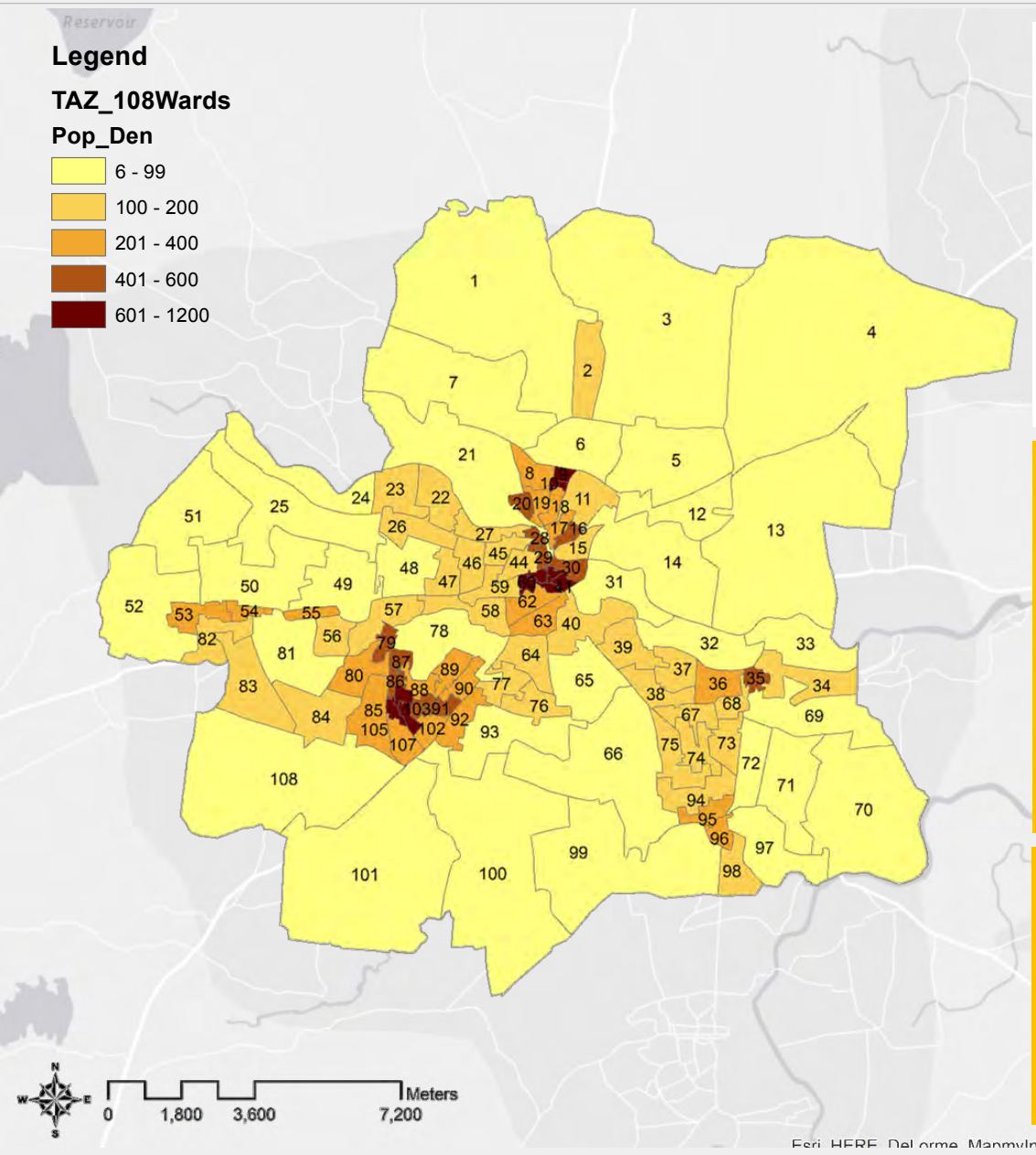
SH-30: Nashik-Trimbak

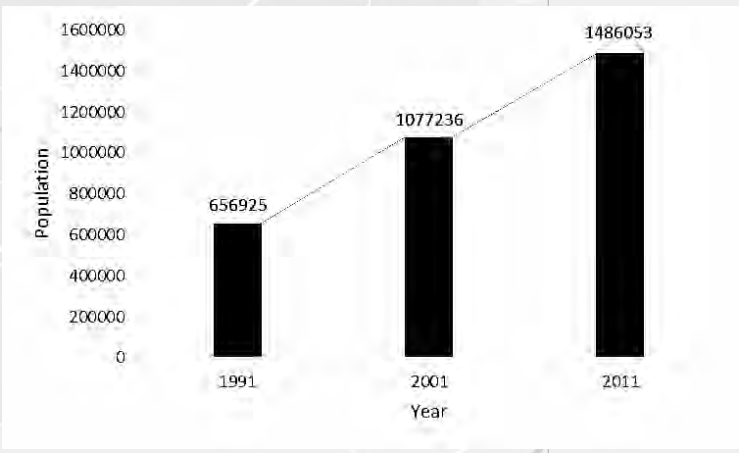
Nashik Road Railway Station - Main line of central Railway on Mumbai-Bhusawal section.

Nashik Today

- Demography and Economy
- Existing Land Use
- Transport Systems
- Traffic and Travel Characteristics
- Service Level Bench Marks

Demography

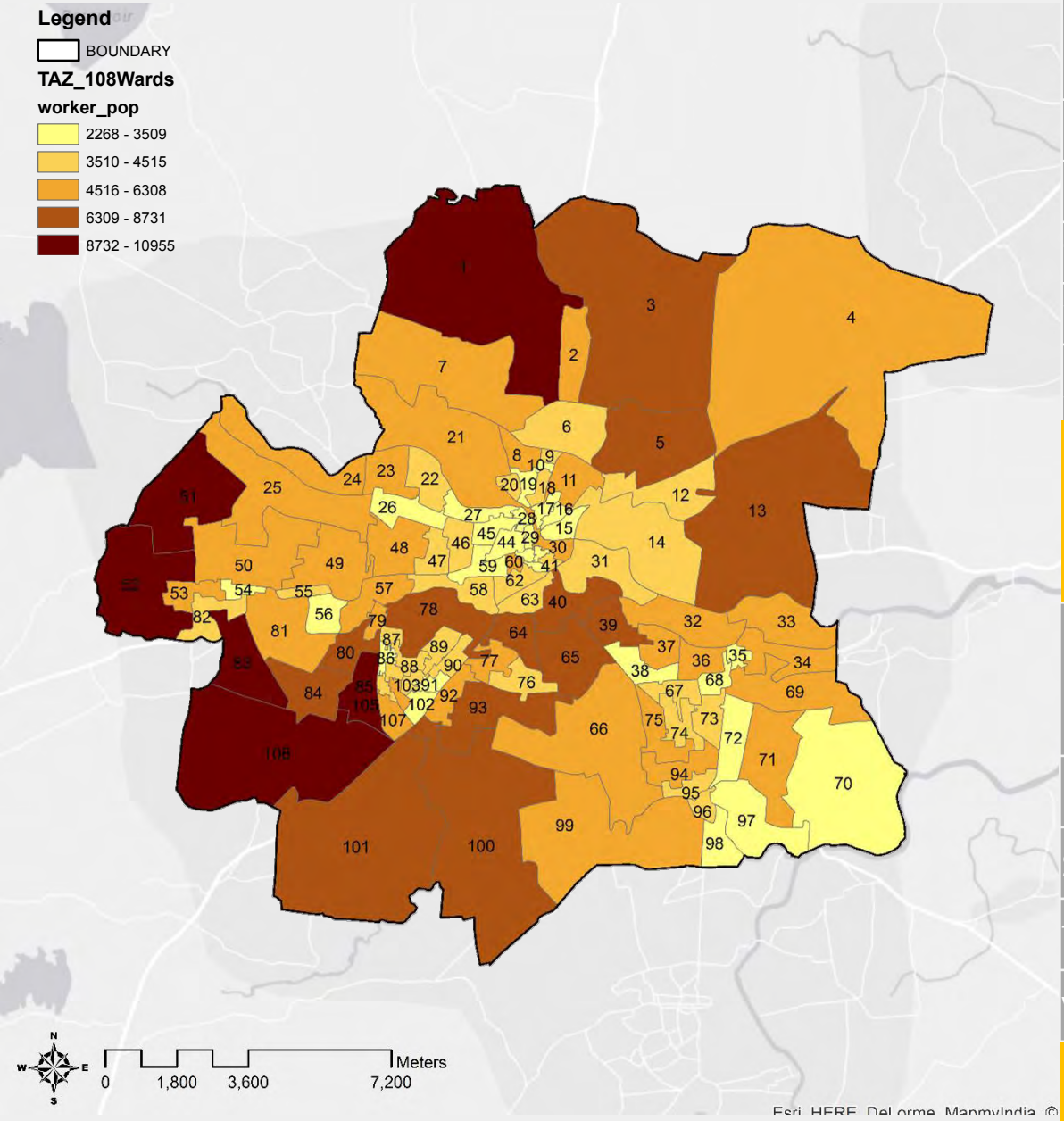




Cumulative Annual Growth Rate (CAGR) of Population from 2001 to 2011 is 3.3% (2001-2011)

Population Gross Density in 2011 is 56 persons/ha whereas Net Density is 127 persons/ha

Economy



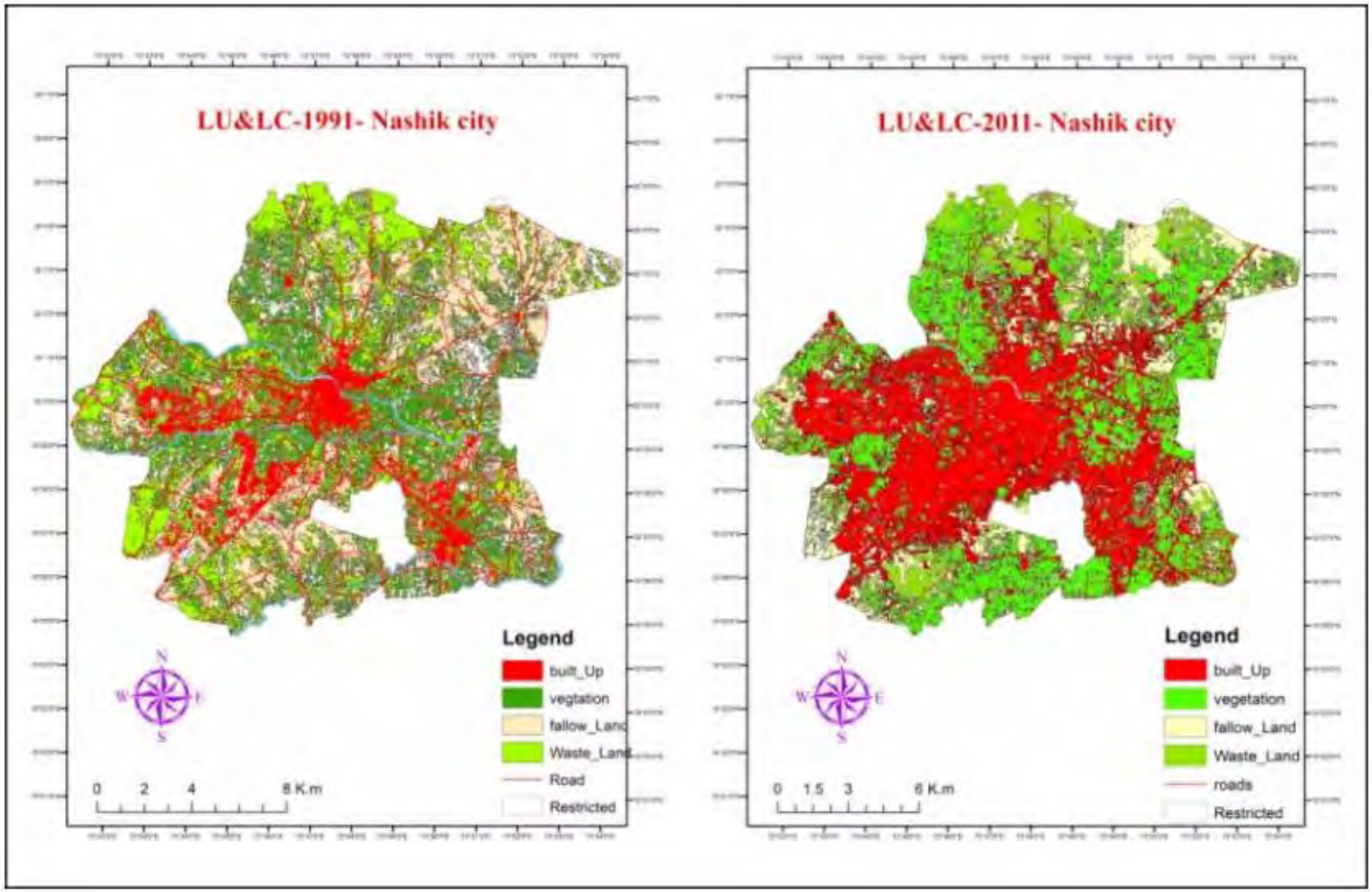
Year	% of total population		CAGR %
	2001	2011	
Primary	2.3	1.8	0.3
Secondary	0.7	1	7.4
Tertiary	31.5	33.3	3.8
Workers	34.5	36	3.7
Non Workers	65.5	64	3

Work Participation Rate (WPR) has increased from 34.5% (2001) to 36% (2011)

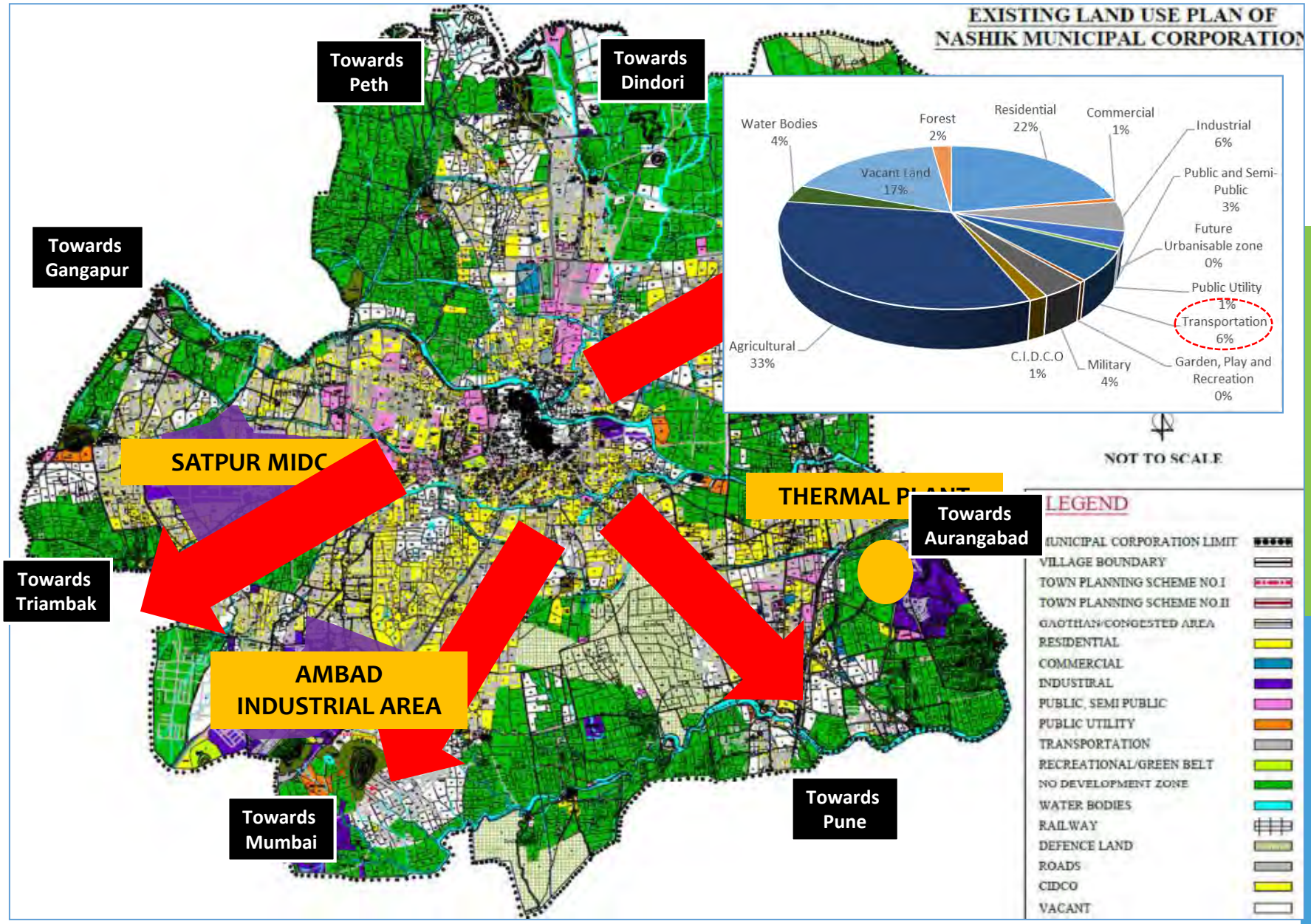
Year	% of working population		CAGR %
	2001	2011	
Primary	6.8	4.9	0.3
Secondary	1.9	2.8	7.4
Tertiary	91.2	92.4	3.8
Workers	100.0	100.0	3.7

Growth of workers in secondary sector is higher (CAGR-7.4%) compared to other sectors

Growth Direction of the City

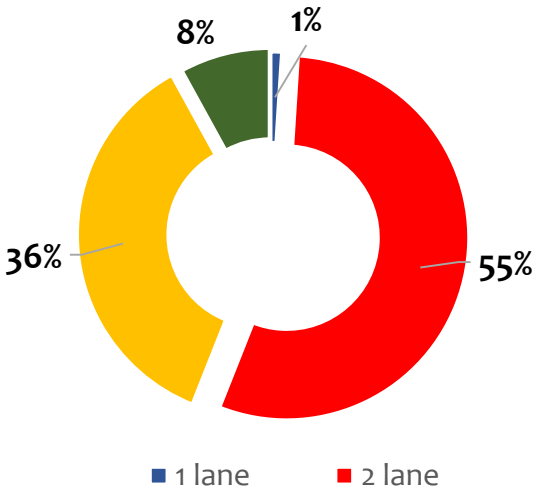


Spatial Setting And Land Use

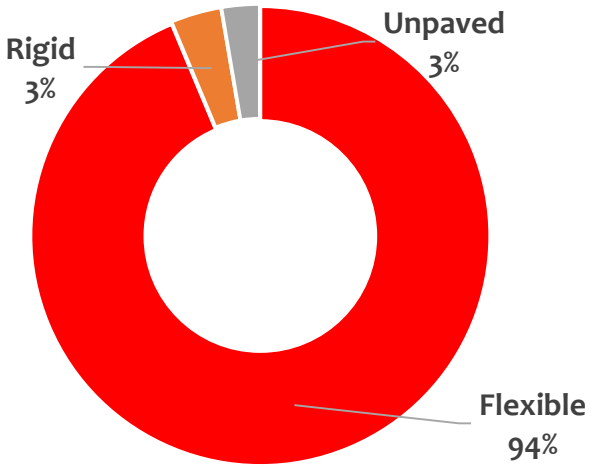


Road Network Characteristics

No of Lanes



Pavement Type

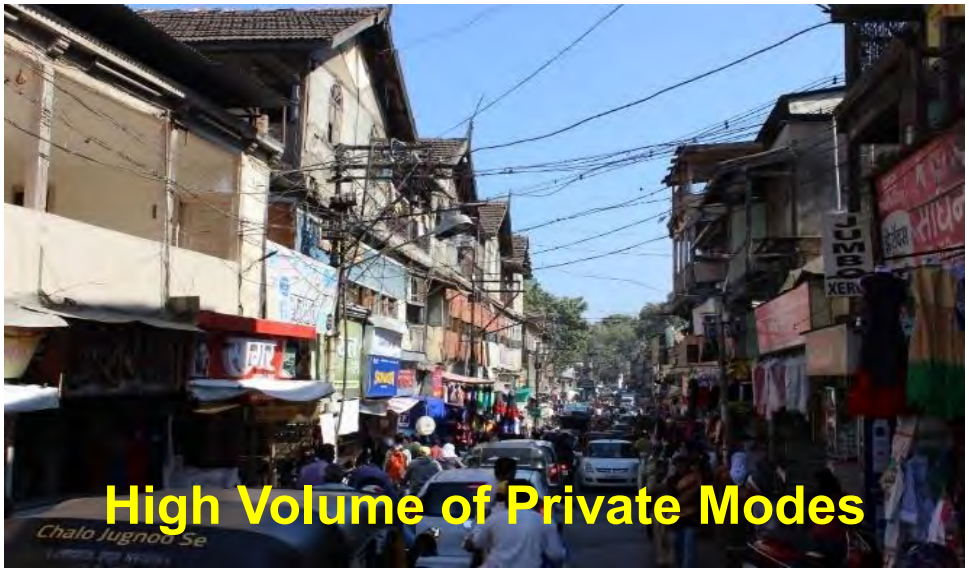


Only **3.8%** of roads have footpath

- **Absence** of cycle tracks in the study area
- **48%** of road does not have appropriate road markings and sign boards
- **57%** of surveyed roads have bus routes passing through them

Absence of Footpaths

Transportation Issues and Challenges

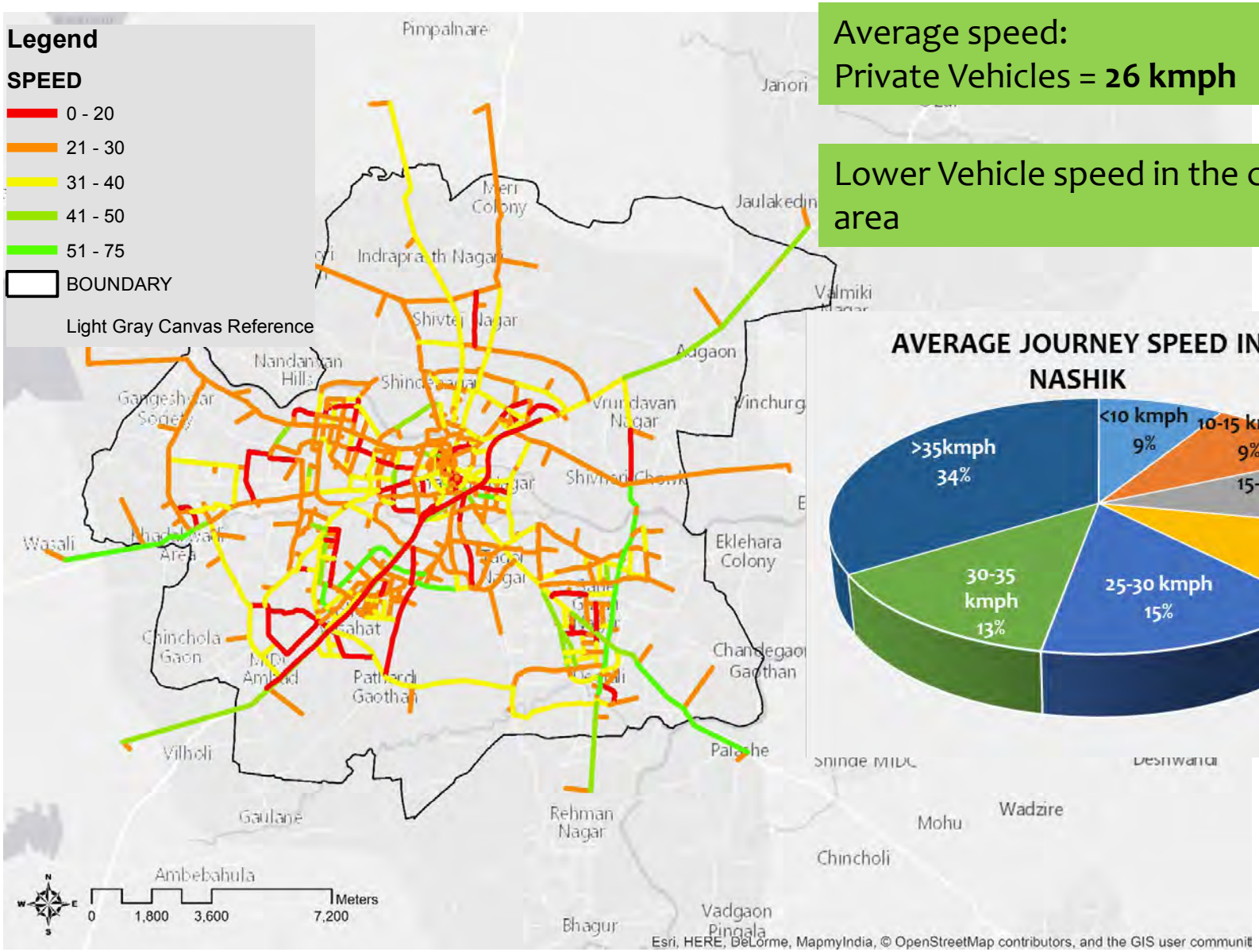


Absence of pedestrian crossing facilities

Absence of pedestrian Walkways

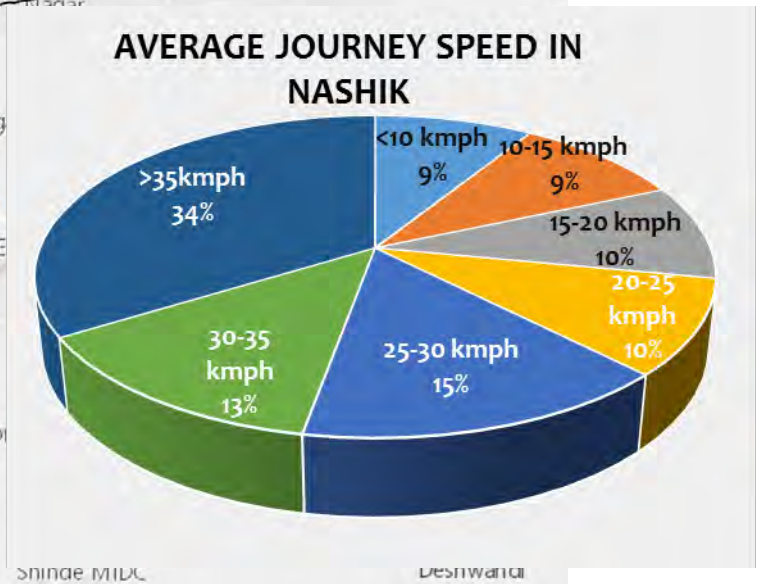
Absence of Universal Accessibility

Road Network Characteristics

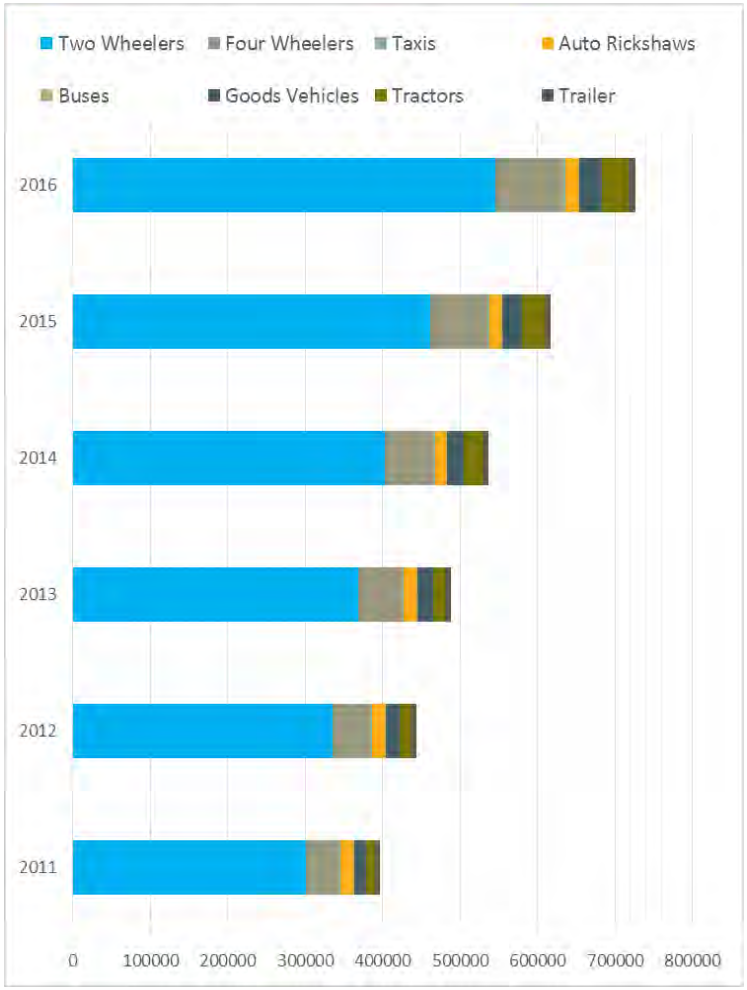


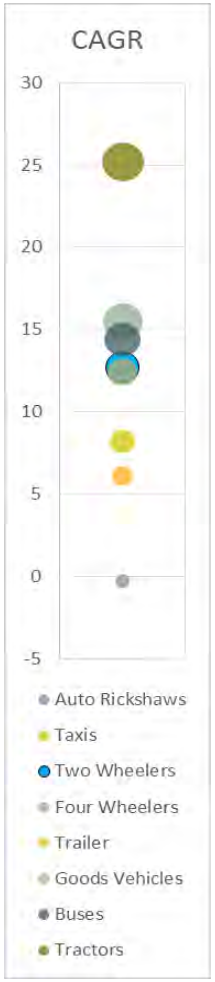
Average speed:
Private Vehicles = **26 kmph**

Lower Vehicle speed in the core city area



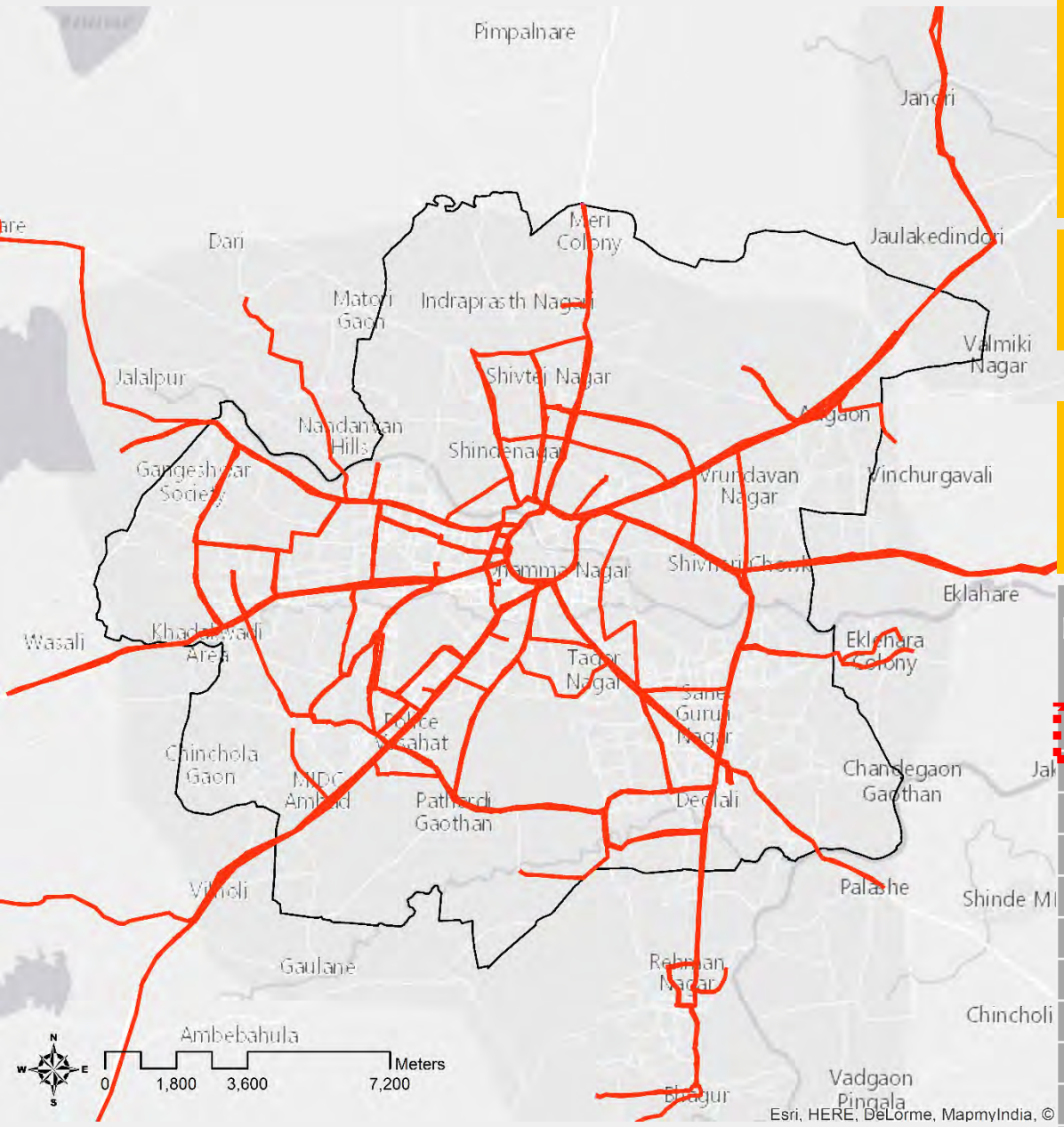
Registered Vehicles





- About 7,32,008 numbers of vehicles have been registered till the year 2016 in Nashik limits of which two wheelers constitute highest share of 74.6% followed by 4-wheelers with 12.3%.
- Growth of four wheelers (12.5%) is higher than compared to two wheelers (10.4%).
- The growth of personal vehicles is more due to which usage of public transport shall reduce which in turn leads to insufficient carriageways on roads.

Public Transportation Systems



City Bus Systems:

- Public transport in Nashik mainly comprise of buses. Currently, **Maharashtra State Road Transport Corporation** (MSRTC) is operating City Bus Services

Fleet Size: **243 buses**
Routes: **508**

Passengers: **1.28 lakhs per day** (reducing at 8.1 % (CAGR) from 2013 to 2016.)

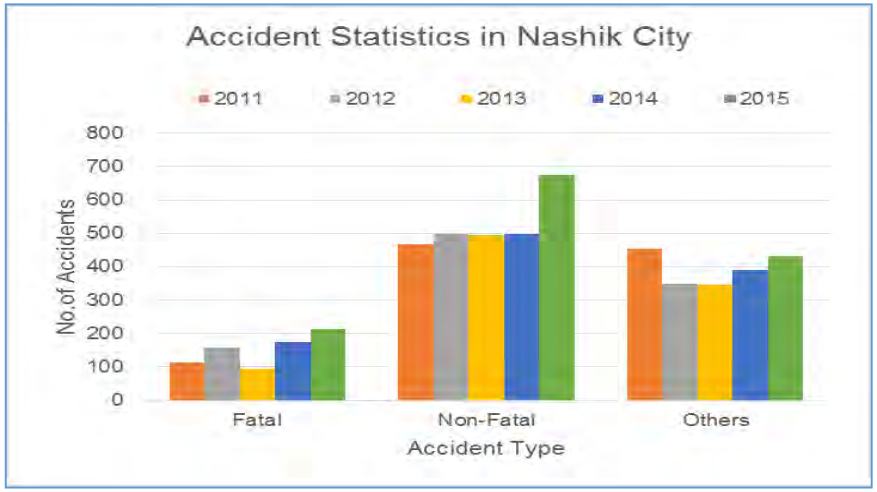
No. of Bus Trips per Route	% Bus Routes	% Trips
1	55.1%	10%
2	16.6%	6%
3	2.7%	2%
4	5.0%	4%
5	2.2%	2%
10	8.4%	13%
15	3.0%	7%
20	1.7%	6%
25	2.0%	8%
>=25	3.2%	43%
Total	100.0%	100%

Transportation Issues and Challenges

Dilapidated City Buses

Improper Access to Bus Terminals

Accidents



- Total no of accidents in the city in the year 2015 is 1320 of which fatal accidents constitute 213 (i.e. 16%).
- The total number of accidents are growing at an average annual growth rate of 6.9%

Intermediate Public Transport Characteristics

Unorganized IPT

- Absence of organised auto rickshaw/ taxi stands in Nashik has been observed.
- Lack of dedicated parking spaces and enforcement from the traffic police and the regional transport office.

Good Transport Characteristics

- Major industrial activities on the out skirt of Nashik city (Hindustan Aeronautics Ltd. at Ozar, Thermal power station at Eklahare, Sinnar M.I.D.C., etc).
- Only two truck terminals (i.e. Adgaon and Mumbai Road) are present which are not completely developed with respect to infrastructure facilities to handle the cargo and truck movements within the terminals.
- Trucks are getting parked on the carriageway resulting in reduction of capacity of the road.


Absence of truck terminals – parking on road

Transportation Issues and Challenges

Land Use Issues

- Commercial/ Institutional developments along major traffic routes
- There is ample undeveloped land available within the limits

Road Network Issues

- Unregulated movement at junctions
- Only 44% of Total roads have divided carriageway

Public Transport Issues

- Improper accessibility
- Infrequent and unreliable.
- Overcrowding (peak hrs.)
- About 55% of the routes are operating on low demand

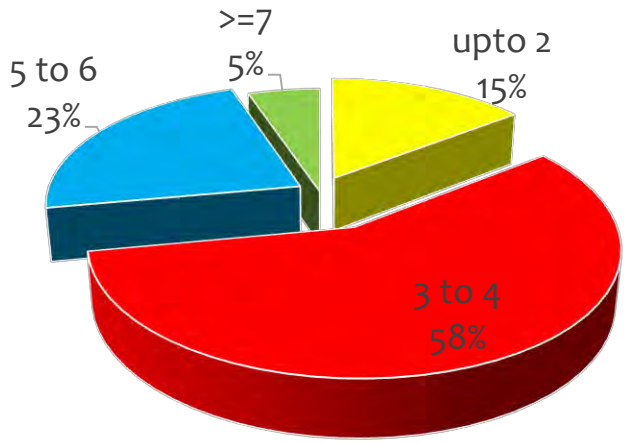
NMT Issues

- Non-availability of safe pedestrian crossing
- Lack of footpath and cycle tracks
- Lack of universal accessibility

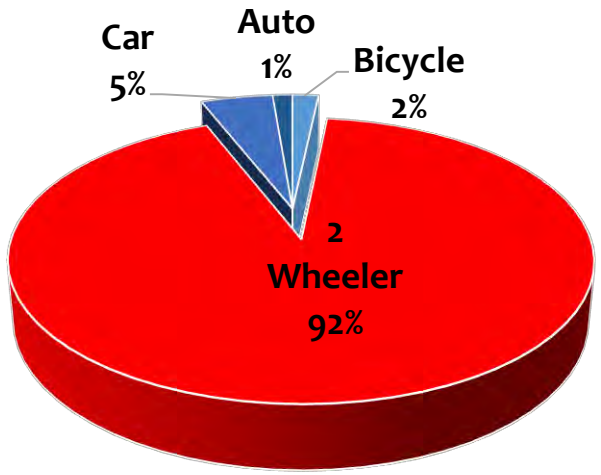
S. No	Survey
1	Classified Volume count surveys at outer cordon locations(16 hours; 4 -days)
2	Classified Volume counts at Screen Line locations (16 hours; 4 days)
3	Turning Volume Counts at Junctions (16hours; 4 days)
4	RSI at Outer Cordon locations (16 hours)
5	Bus Stop Waiting, boarding and alighting survey (16 hours)
6	Bus Stop OD surveys including the Stated Preference surveys of bus users (16 hours)
7	PT & IPT Stated Preference Surveys for private users along major activity centers
8	Bus / Rail Terminal Passenger Count survey (boarding & alighting) 16 hours
9	Bus/Rail/Terminal passenger OD Surveys (16 hors)
10	Pedestrian Volume Counts at critical junctions (16 hours)
11	Speed and Delay Study at peak and off peak hours
12	Spot Speed Survey
13	Vehicle Operator Survey (Taxi/auto/goods)
14	NMT Opinion Survey
15	Parking Number Plate Survey (Off Street; 16 hrs)
16	Parking Number Plate Survey (On Street; 16 hrs)
17	Parking - Willingness to Pay Survey (8 hours)
18	House Hold Interview (1%)
19	Road Network Inventory
20	Occupancy at outer cordon locations (16 hours; 4 -days)
21	Occupancy surveys at Screen Line locations (16 hours; 4 days)

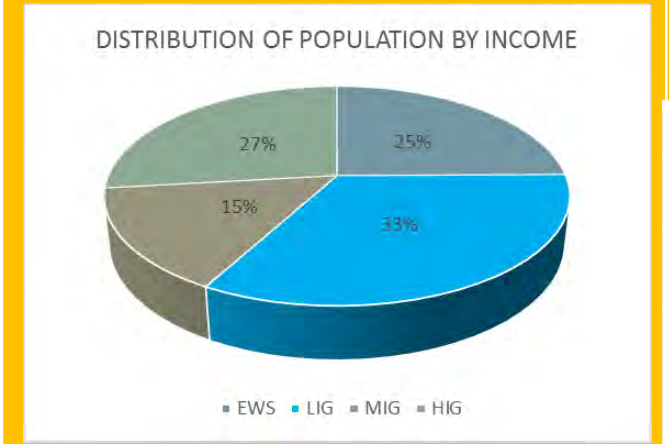
Household Socio Economic Characteristics

Distribution of household by Size



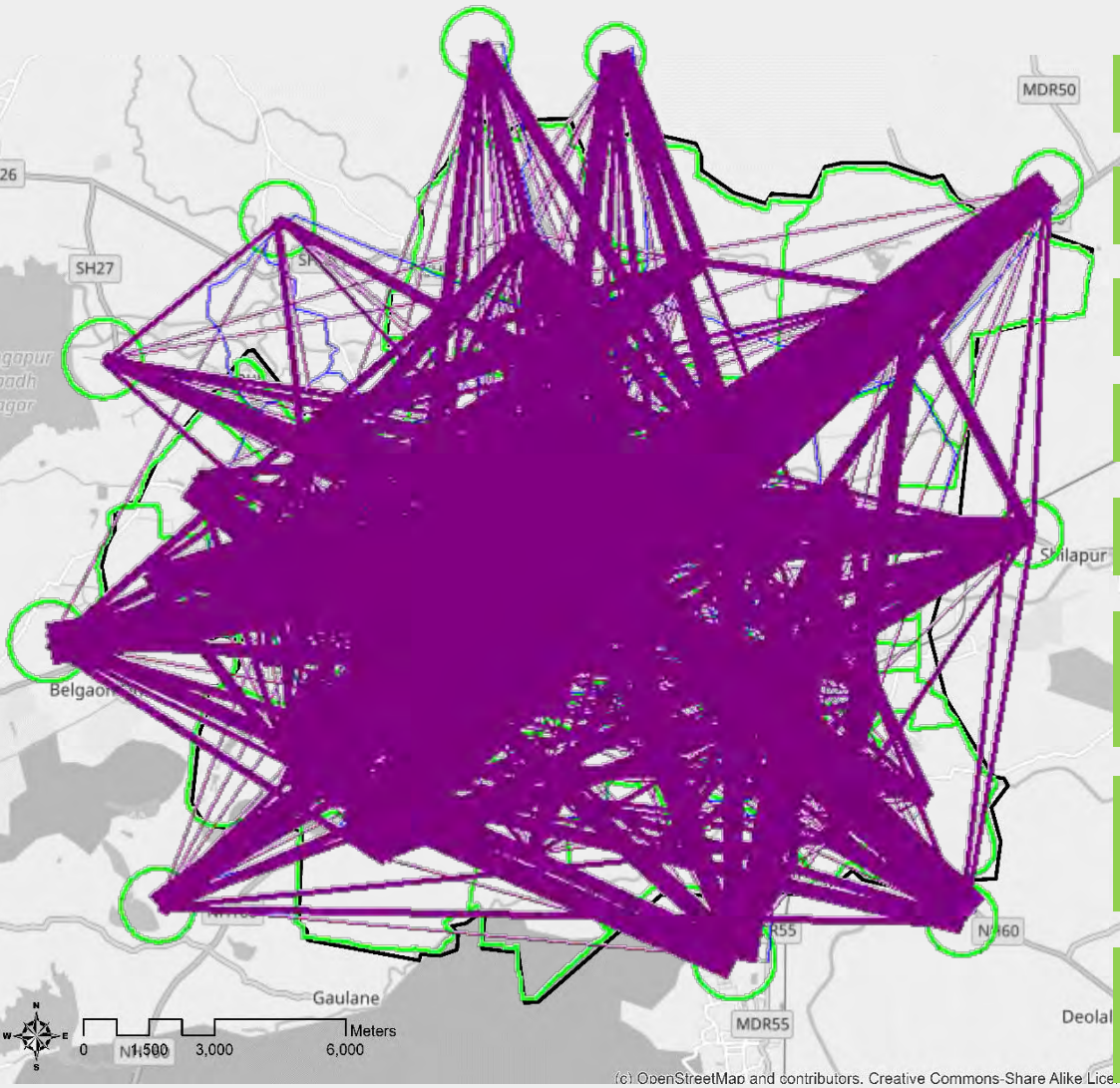
Distribution of Vehicles owned by Households





Category	Monthly Household Income
EWS	Up to 5000
Low Income Group	5001-10000
Middle Income Group	10001-15000
High Income Group	Above 15000

Household Travel Characteristics



Total Population: **17.5 lakhs**

Total Trips : **22.5 lakhs**

Per capita Trip Rate: **1.29**

Motorized Trip Rate: **0.91**

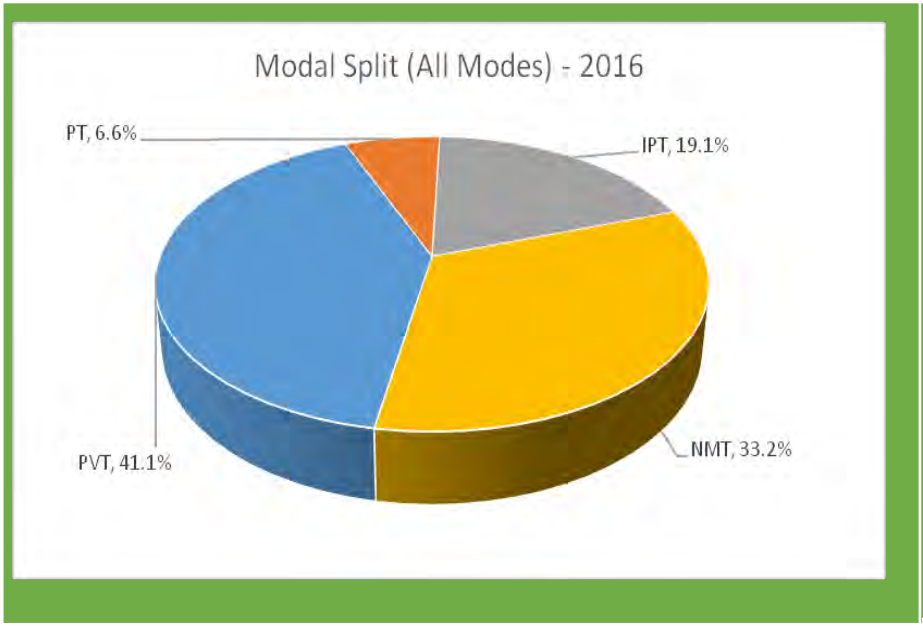
Average Trip Length: **4.3 Km**

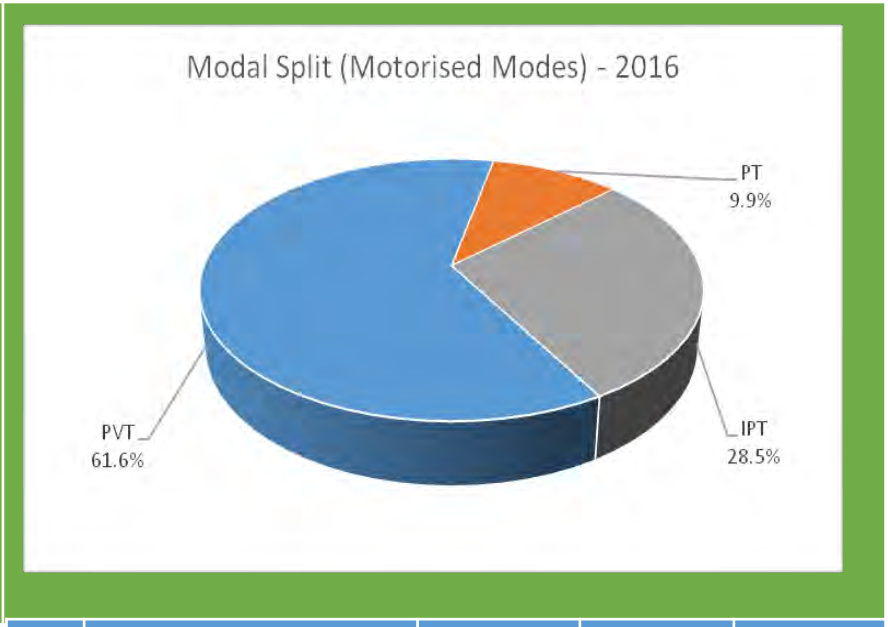
Average Motorized Trip Length: **5.7 Km**

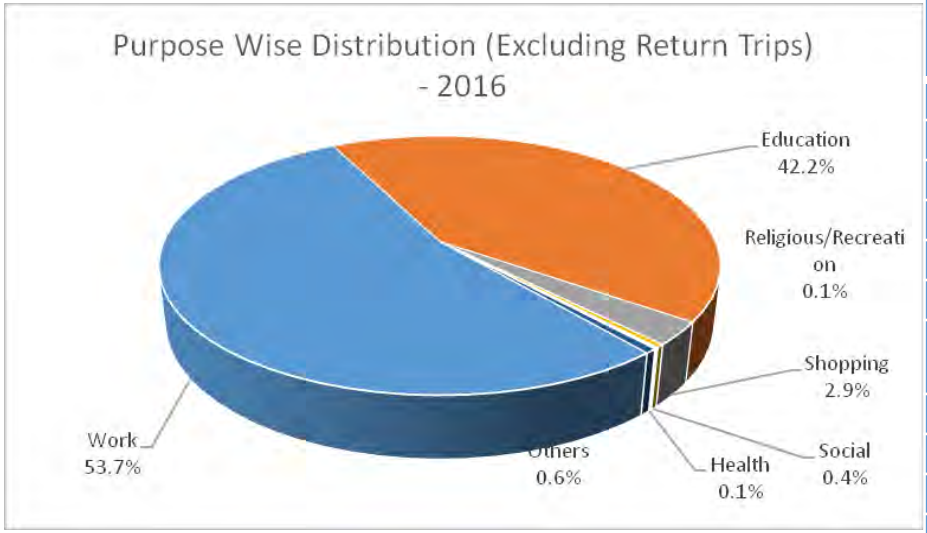
Average Household Income (Rs.) **– 12,271**

Expenditure on Transport – **8% of the average household income.**

Household Travel Characteristics (Including Intra-zonal Trips)

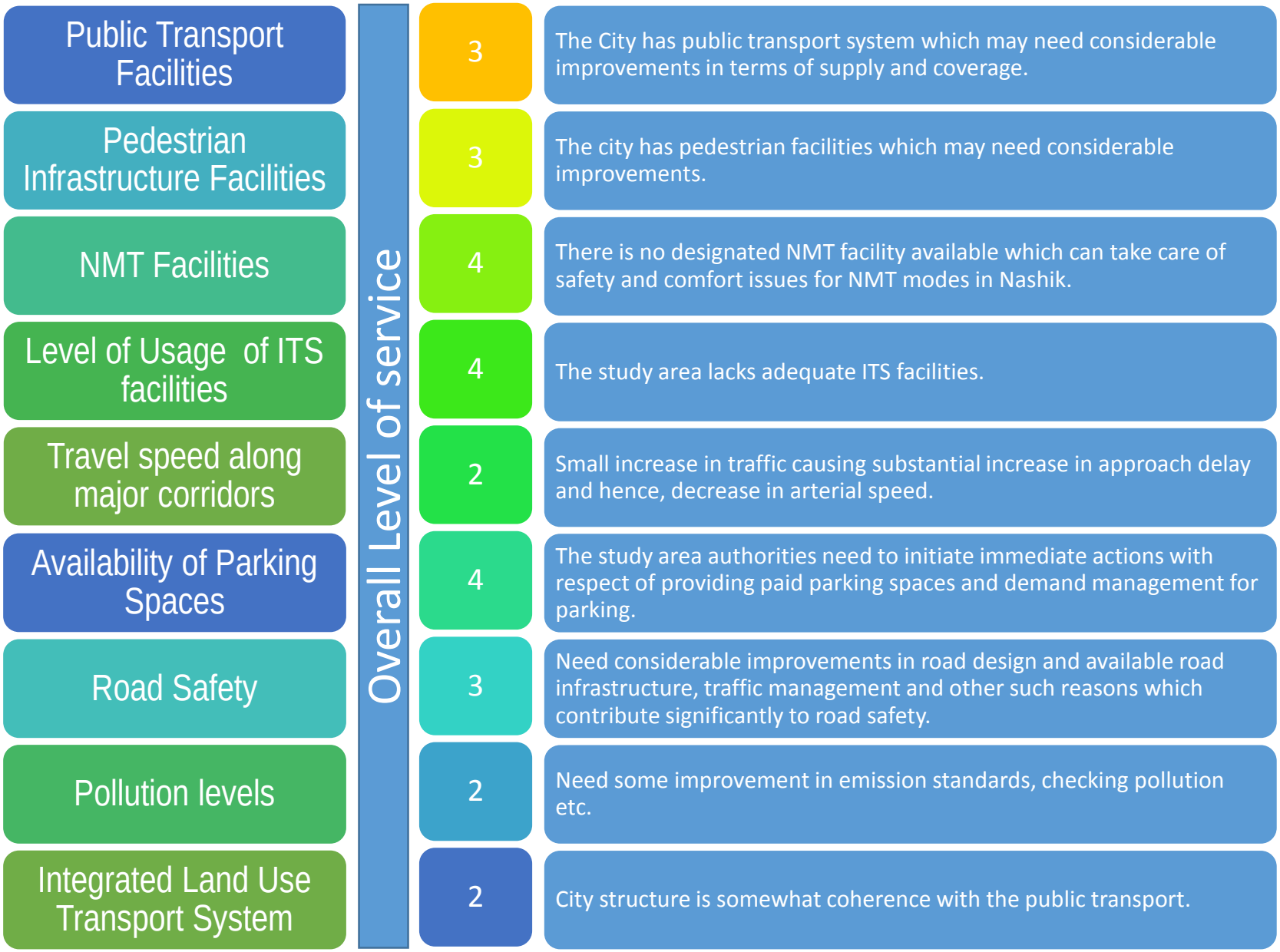






Code	Mode	Avg. Trip Length (km)	Avg. Trip Time (min)	Avg. Waiting Time (min)
1	Walk	0.8	17.5	
2	Car / Jeep / Van / Taxi	5.7	26.8	
3	2-Wheeler	5.0	23.9	
4	Auto-Rickshaw	4.4	25.3	6.9
5	Shared Auto / Tata Magic	4.2	26.2	8.5
6	City Bus (Govt.)	6.0	26.8	9.9
7	Intercity bus/ Inter-state (Govt.)	36.9	55.5	7.6
8	Private Bus	4.3	23.0	8.5
9	Mini Bus	4.5	29.6	7.8
10	Cycle	2.7	21.4	
11	Cycle Rickshaw	1.7	16.4	5.0
12	Rail	69.9	85.6	9.2
	Total	3.7	22.9	2.0

Service Level Benchmarks

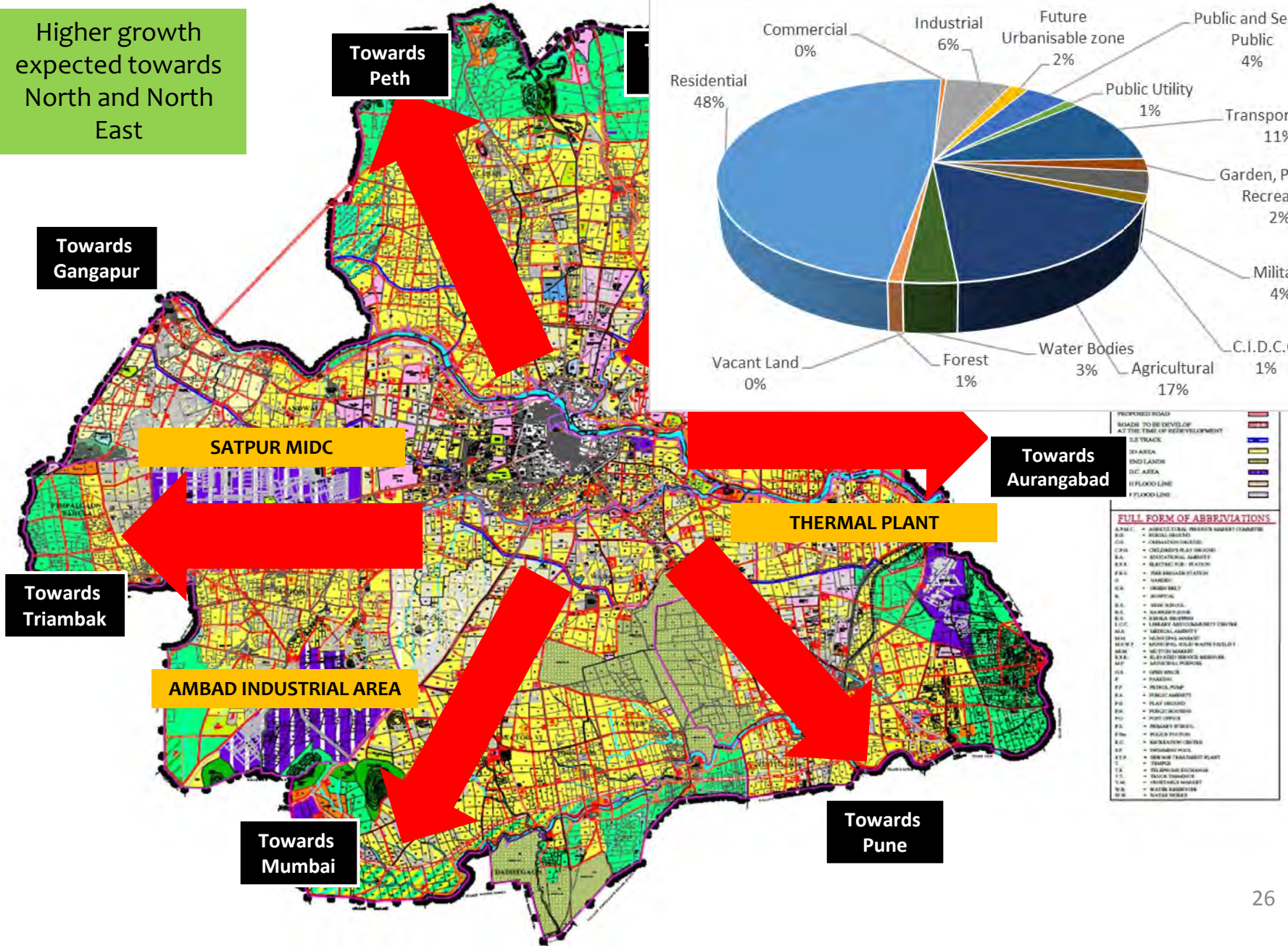


Nashik Tomorrow

- Future Land Use
- Population and Employment forecast
- Scenarios

Proposed Land Use 2036

Higher growth expected towards North and North East



Population and Employment Forecast

- According to the proposed draft development plan, higher growth is expected towards north and north east i.e. along Makhmalabad Road and Dindori Road and medium growth towards South and South West.
- The city has bagged 0.3% of the total memorandums of understanding worth Rs 7.94 lakh crore signed during the 'Make in India Week' in Mumbai in February 2016.
- The city is showing signs of emerging as an industrial destination on its own. Various industries have proposed to pump in Rs 4,600 crore in Nashik during next five years and this may create direct employment to around 3,500 people.

Year	Population (in Lakhs)	Employment (in Lakhs)
2016	17.45	5.70
2021	20.50	6.61
2026	24.08	7.66
2031	28.28	8.25
2036	33.22	8.67

Scenarios

Business As Usual Scenario (BAU)

- The following committed projects were considered for horizon years proposed by Public Works Department and NHAI.
  - Provision of Entry/Entry points to Mumbai-Agra Flyover and also extension of flyover towards Ozar road.
  - Development of PWD Ring Road around Nashik Municipal Corporation - Length - 131km.

Sustainable Urban Transport Scenario (SUT)

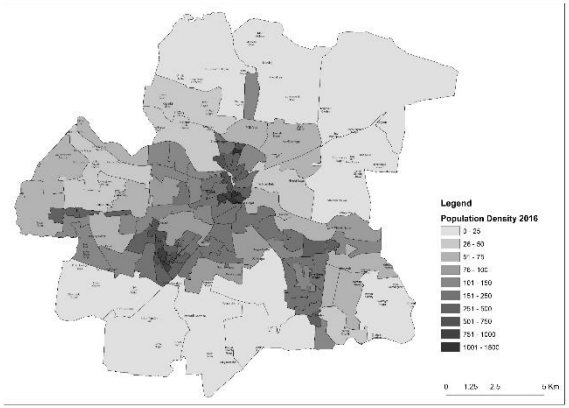
Forecasting the future growth of Nashik, the alternate road network plan evolved for the horizon year 2036 with the following premises/hypothesis:

Committed Network + Expansion of Mobility & Transit Corridors + Development of ORR

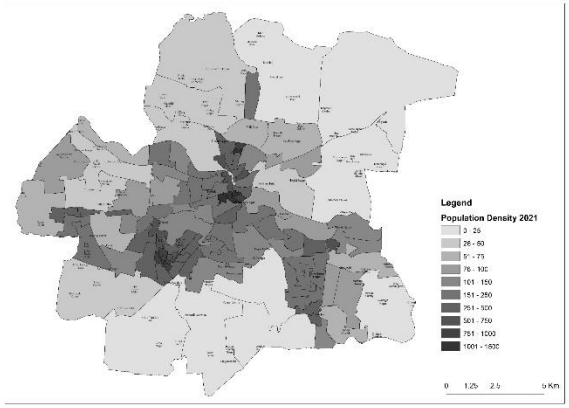
Following projects were considered along with BAU scenario for horizon years based on corridor demand and other secondary reports.

- Projects considered in BAU
- Development of ORR
- Expansion of Mobility & Transit Corridors
- TOD along Major Transit Corridors

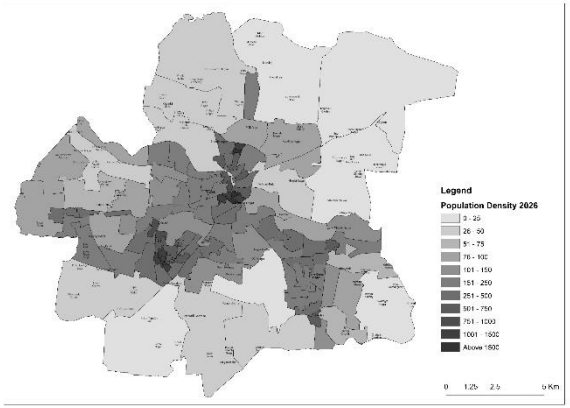
BAU – Population Distribution



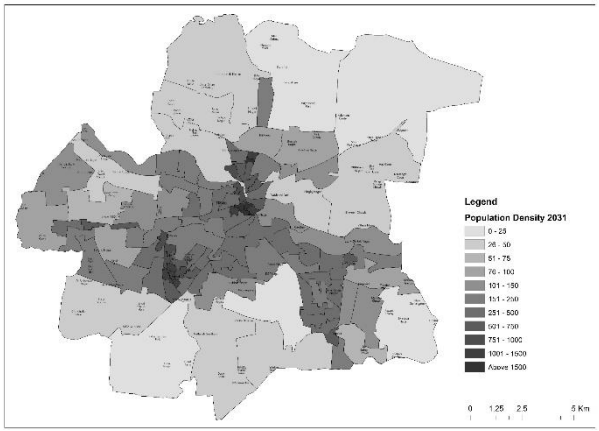
2016



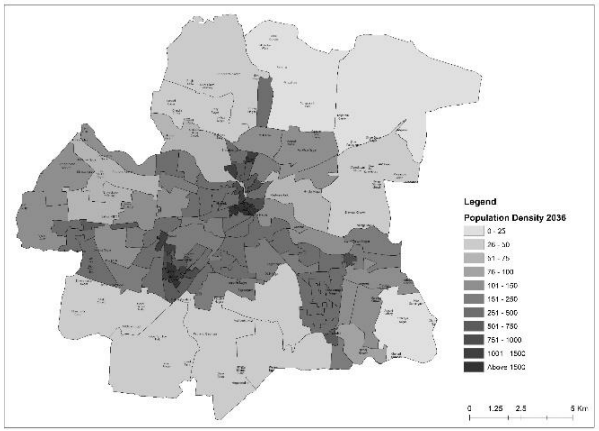
2021



2026

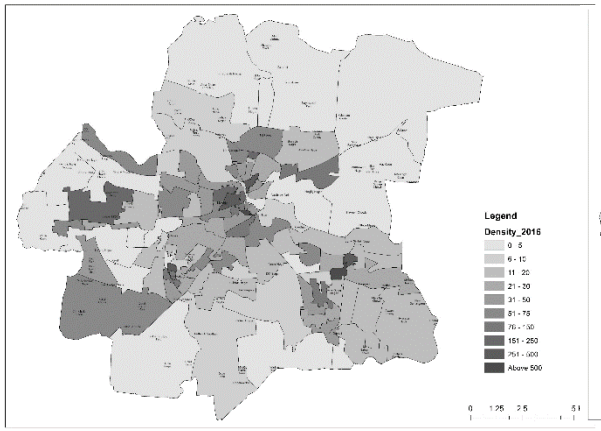


2031

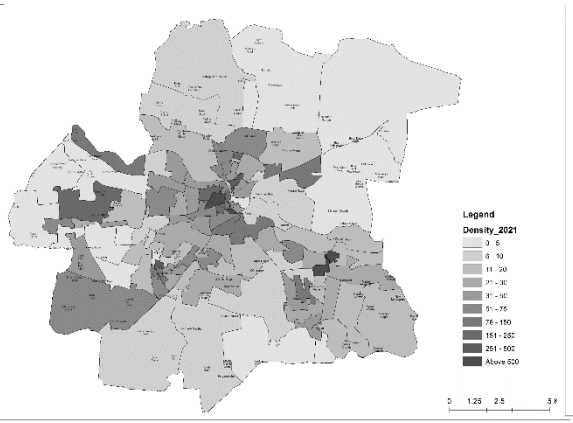


2036

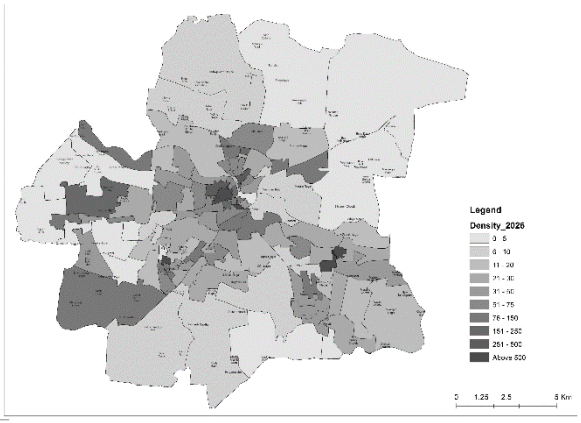
BAU – Employment Distribution



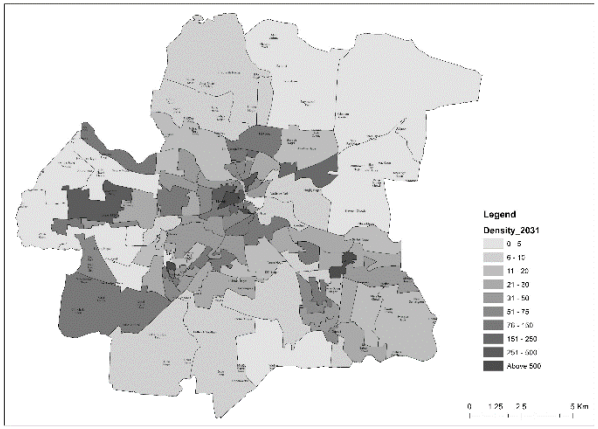
2016



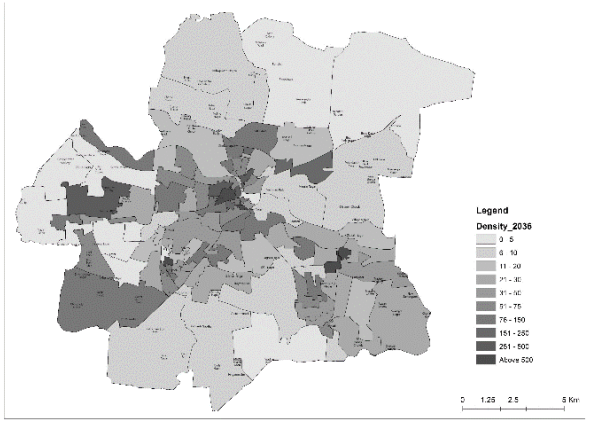
2021



2026



2031

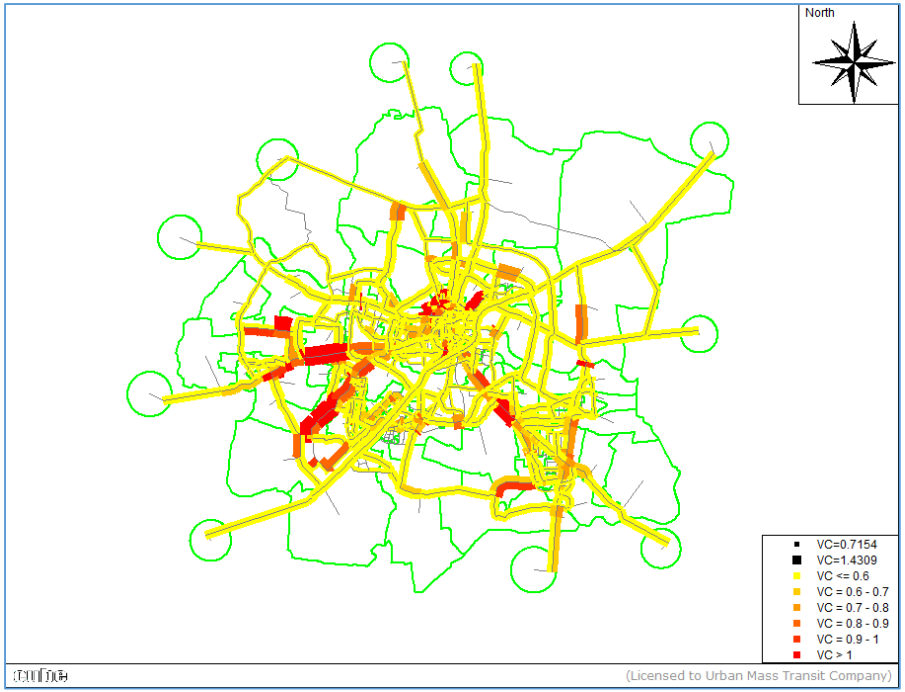


2036

BAU – Traffic Characteristics

Existing

Link Flow

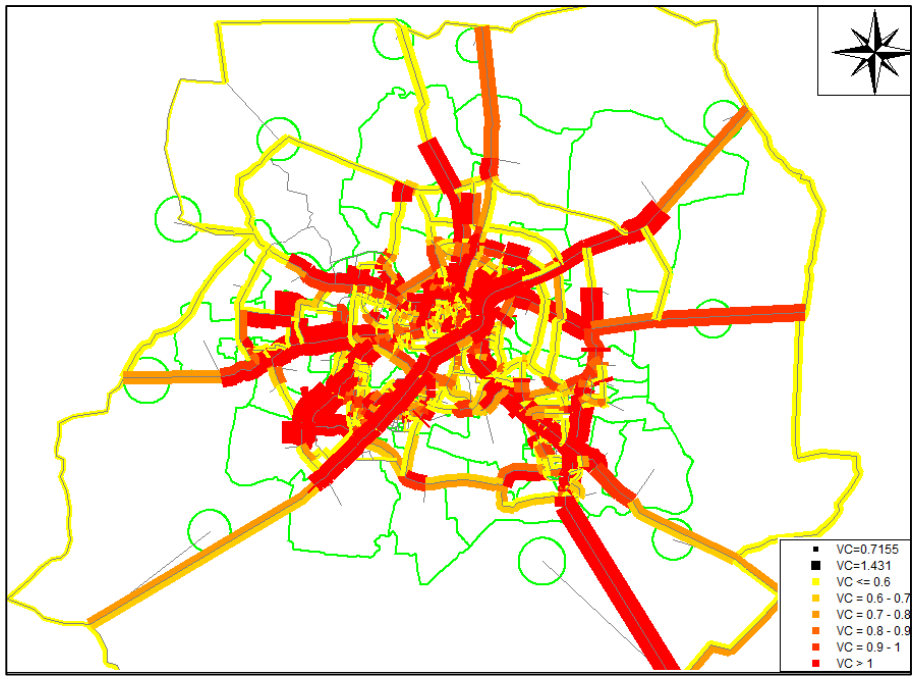


Travel Speed: 32 kmph

PT Mode Share : 11.7%

2036: Under Business as Usual Scenario

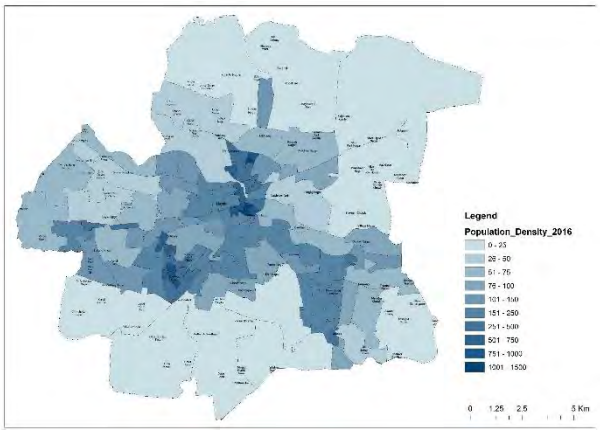
Link Flow



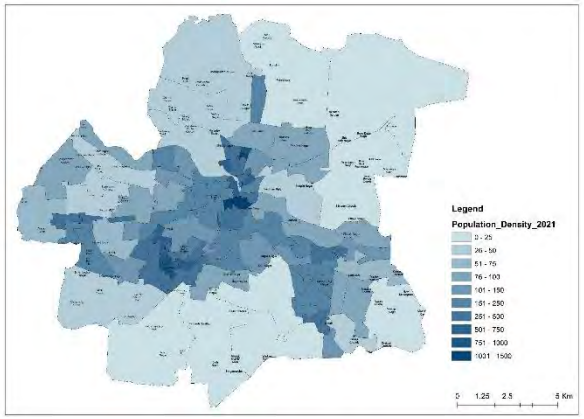
Travel Speed: 25 kmph

PT Mode Share : 8.6%

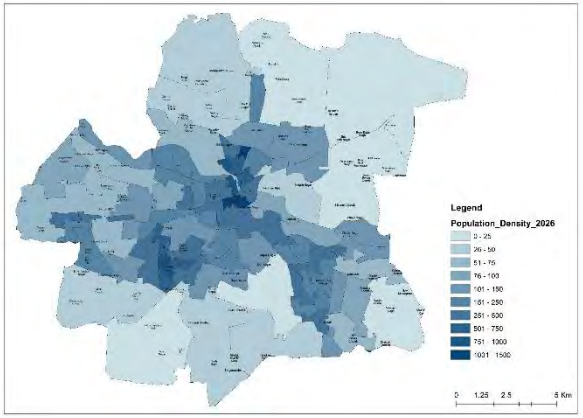
SUT – Population Distribution



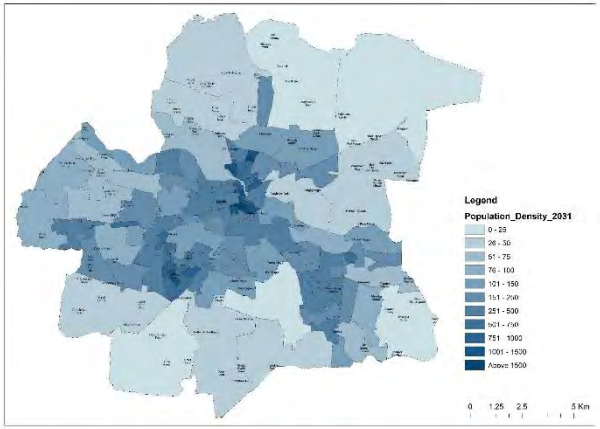
2016



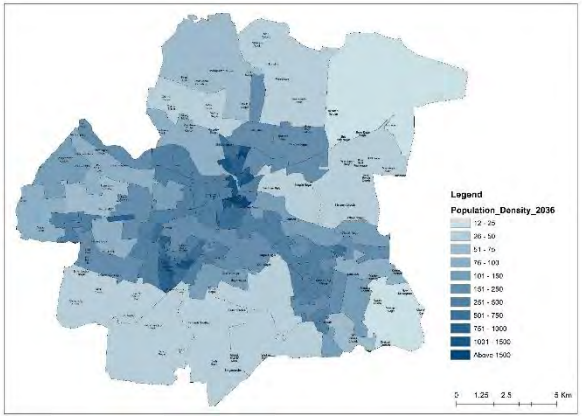
2021



2026

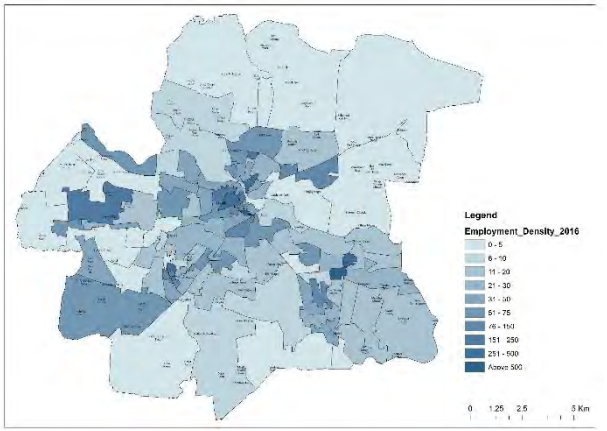


2031

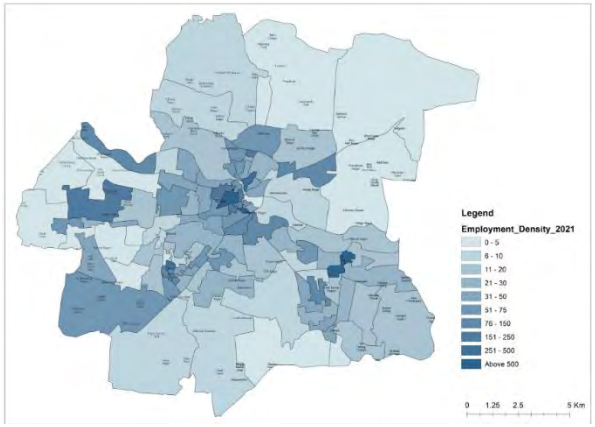


2036

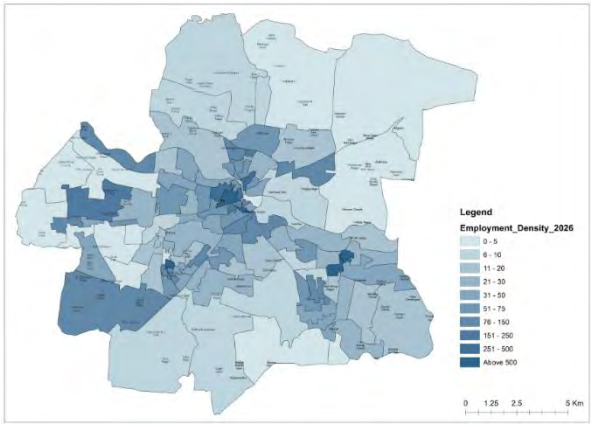
SUT – Employment Distribution



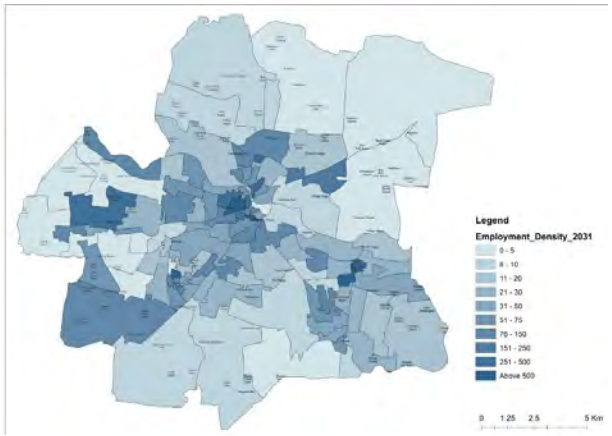
2016



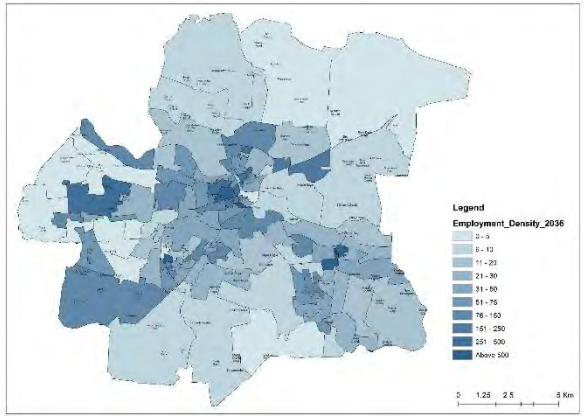
2021



2026



2031

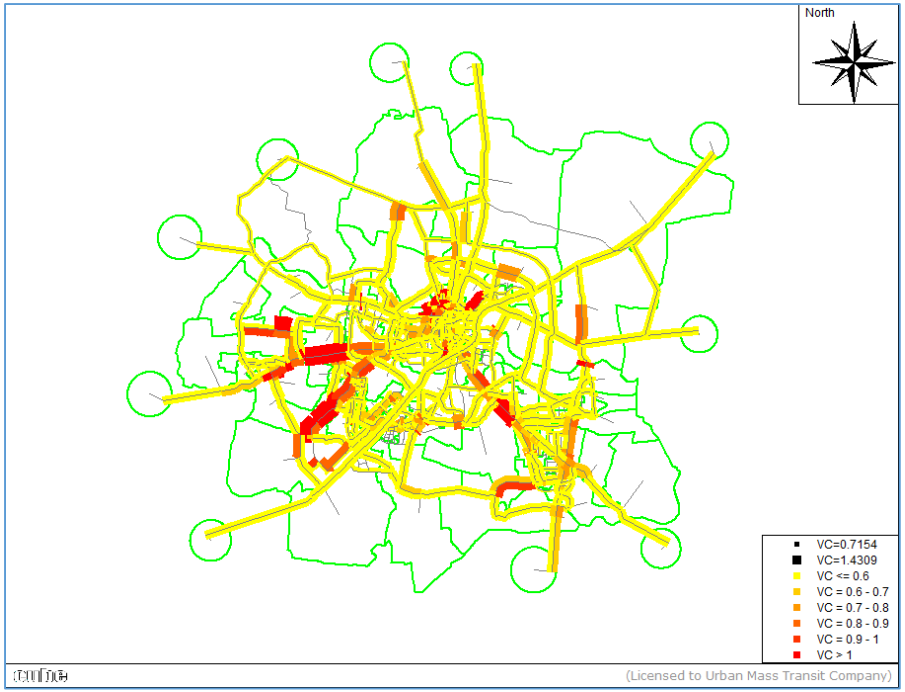


2036

SUT – Traffic Characteristics

Existing

Link Flow

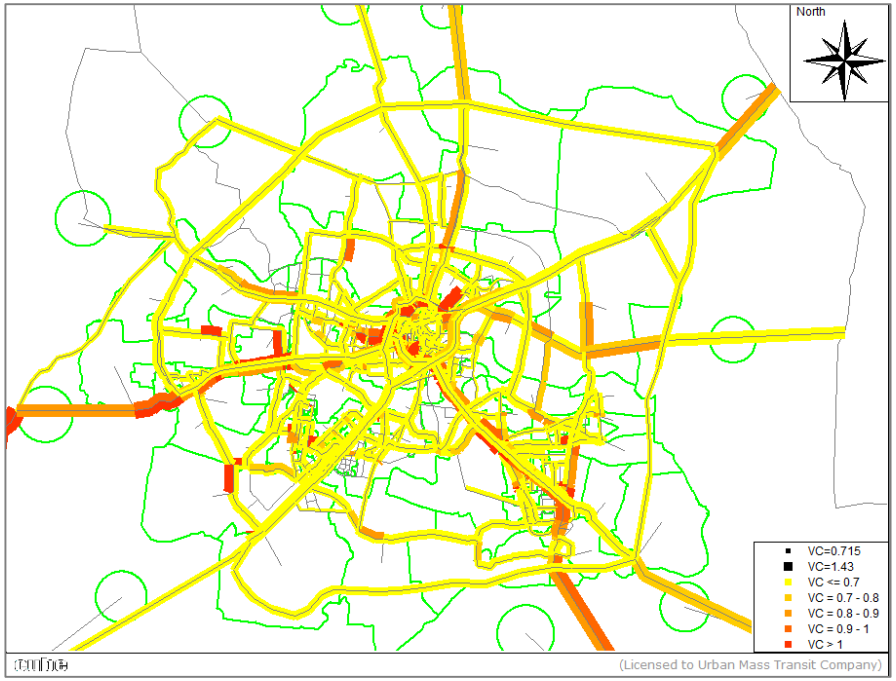


Travel Speed: 32 kmph

PT Mode Share : 11.7%

2036: Under Sustainable Scenario

Link Flow



Travel Speed: 32 kmph

PT Mode Share : 33%

VISION

*"To attain a **People Centric Urban Transport System** with an integrated, efficient, livable and sustainable transport system for improving mobility of people and goods"*

GOALS

1. Ensure **safety and mobility of pedestrians** and cyclists by designing streets and areas that make a more desirable, livable city for residents and visitors and support the public transport system.

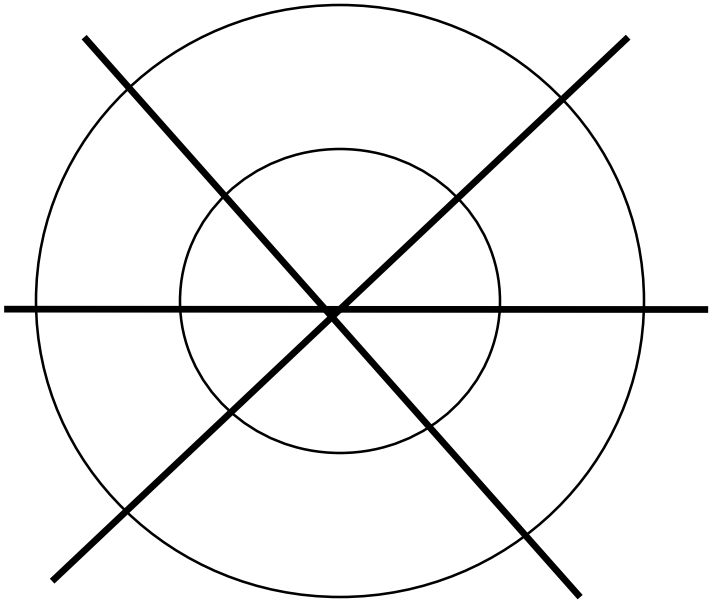
2. Develop **public transit system in conformity with the land use** that is accessible, efficient and effective.

3. Develop **traffic and transport solutions that are economically/ financially viable and environmentally sustainable** for efficient and effective movement of people and goods

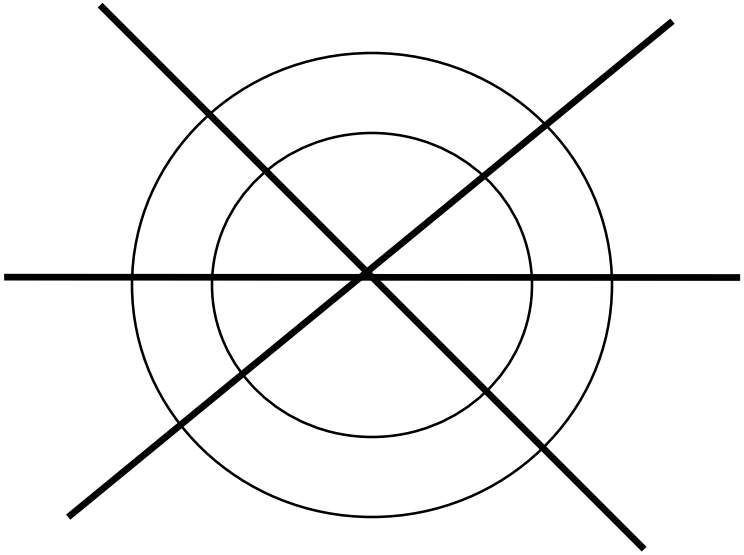
4. Develop a **Parking System that reduces the demand for parking** and need for private mode of transport and also facilitate organized parking for various types of vehicles.

Sustainable Transport Strategies

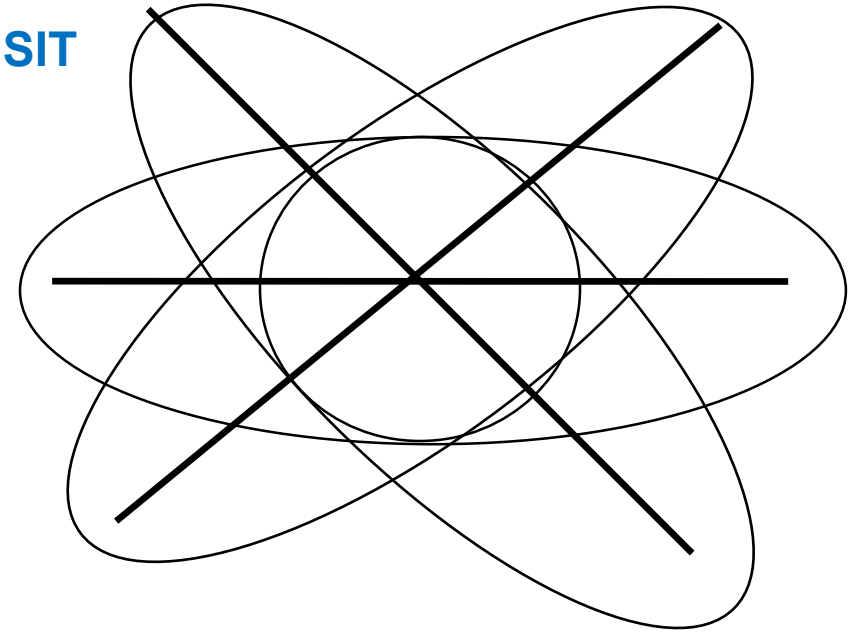
- **Land Use and Transport Strategy**
- **Public Transit Improvement Strategy**
- **Non-Motorized Transport Strategy**
- **Road Network Strategy**
- **Travel Demand Management Strategy**
- **Freight Management Strategy**
- **Traffic Engineering Strategy**
- **Technological Strategy**



MULTI NODAL TRANSIT NETWORK



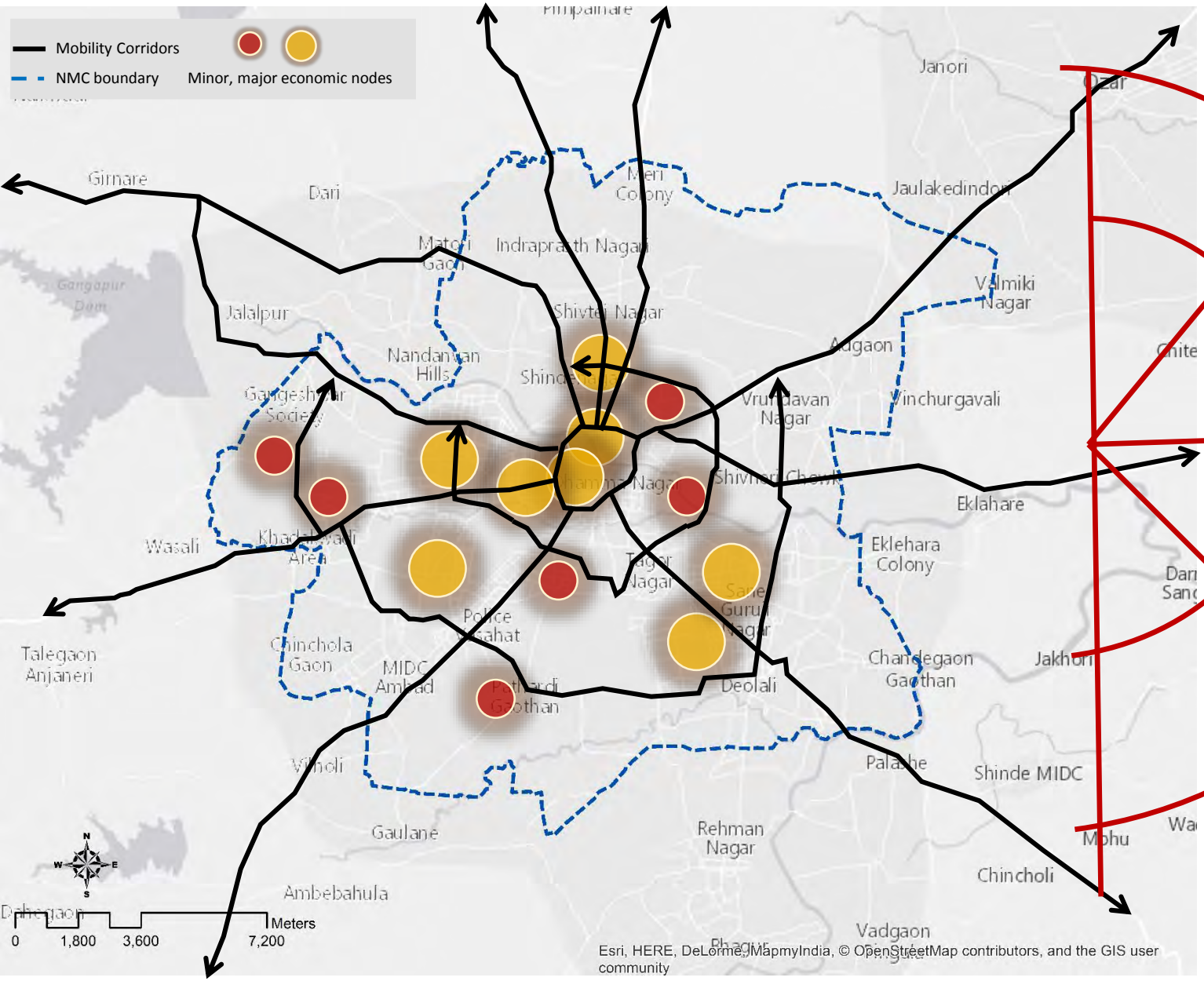
COMPACT CITY CONCEPT



HYBRID DEVELOPMENT

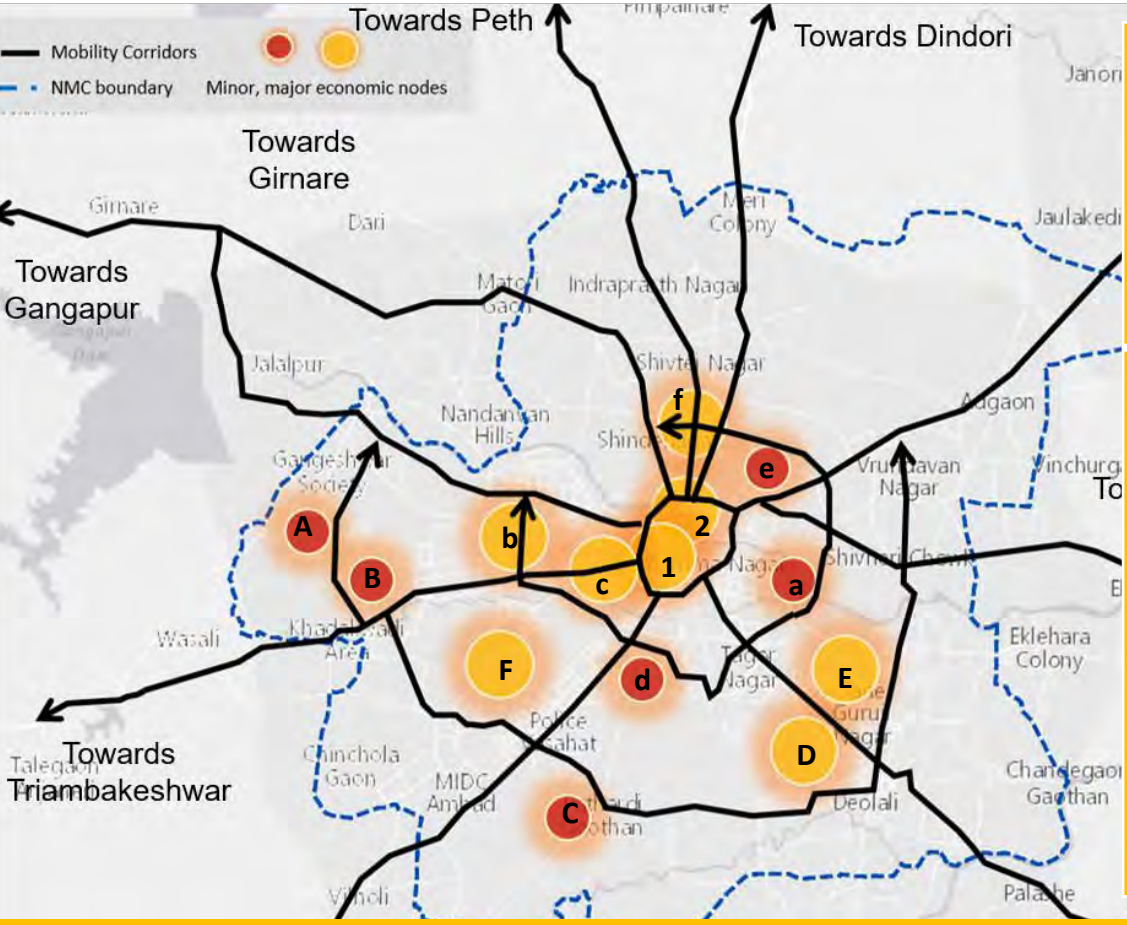
Land Use and Transport Strategy

Multi-nodal Transit Concept



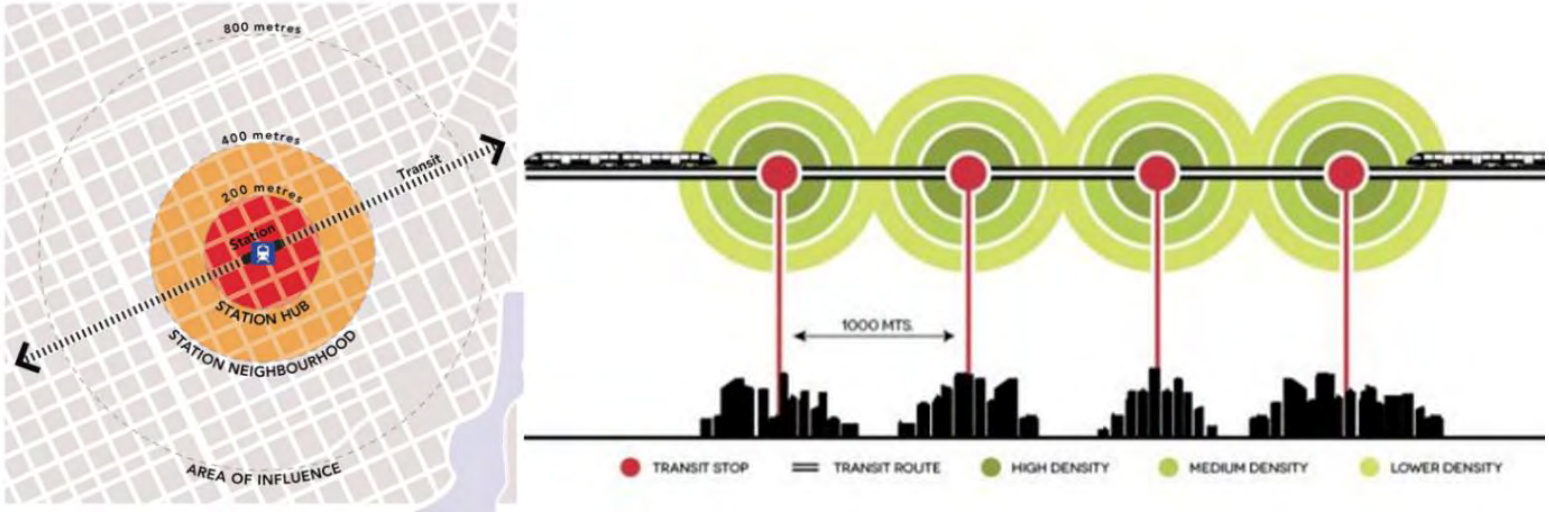
Land Use and Transport Strategy

Multi-nodal Transit Concept



Immediate Proximity (Along Inner ring road)	Medium Proximity (b/w IRR and ORR)	Low Proximity (Along Outer Ring Road)
1. Shalimar	a. Tapovan	A. Shramik Nagar
2. Panchavati	b. Mahatma Nagar	B. Ashok Nagar
3. Bhadrakali	c. Sharanpur	C. Pathardi
	d. Indira Nagar	D. Nashik Road Area
	e. Hirawadi	E. Jail Road Area
	f. Peth Road	F. CIDCO

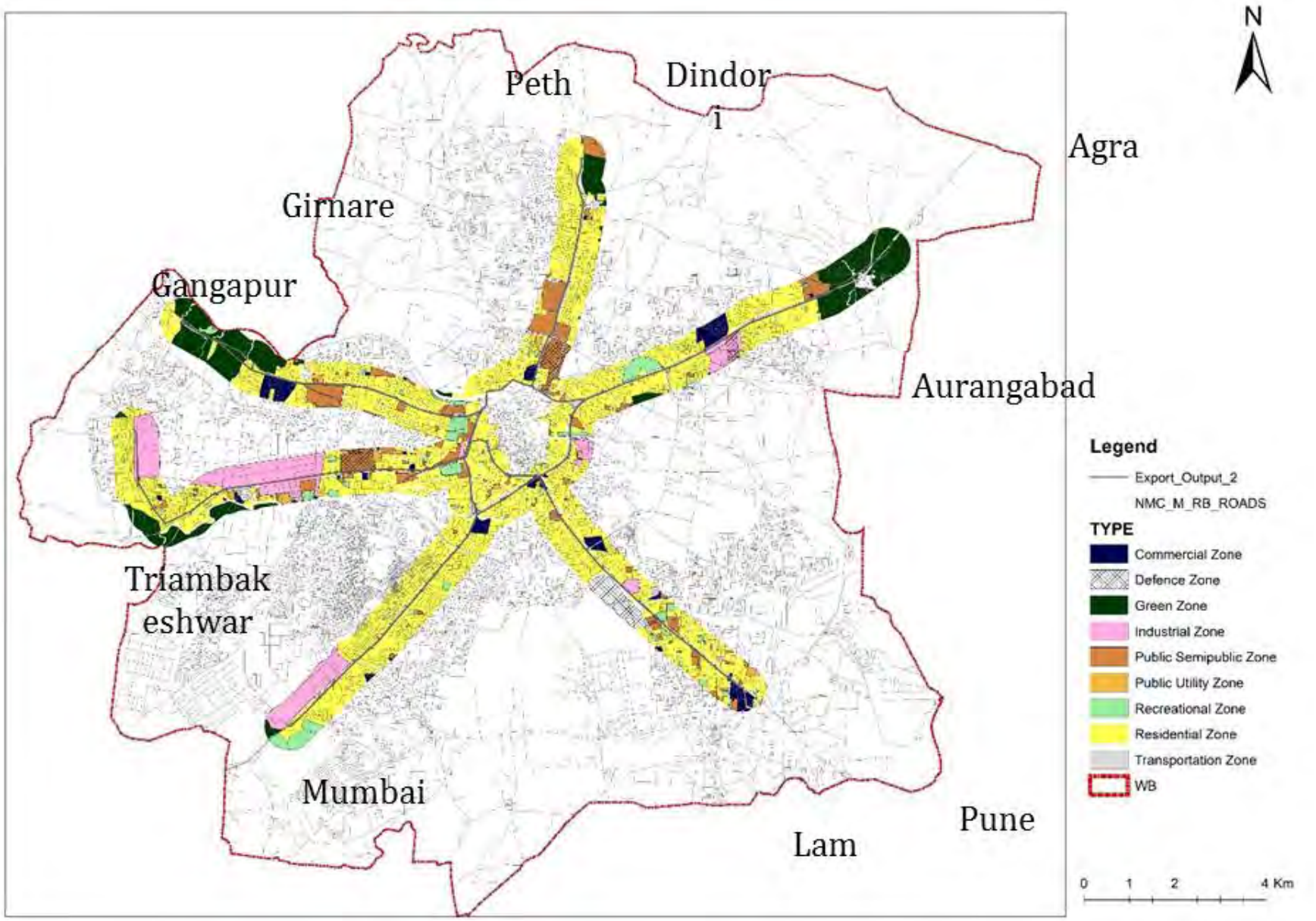
- Develop each town as a **node**
- A **Public transport strategy** for a node
- A **NMT network** for a node
- Promote **mixed use development** to encourage short trips
- **Urban mobility corridors** to connect the nodes



CONCEPT OF TRANSIT ORIENTED DEVELOPMENT

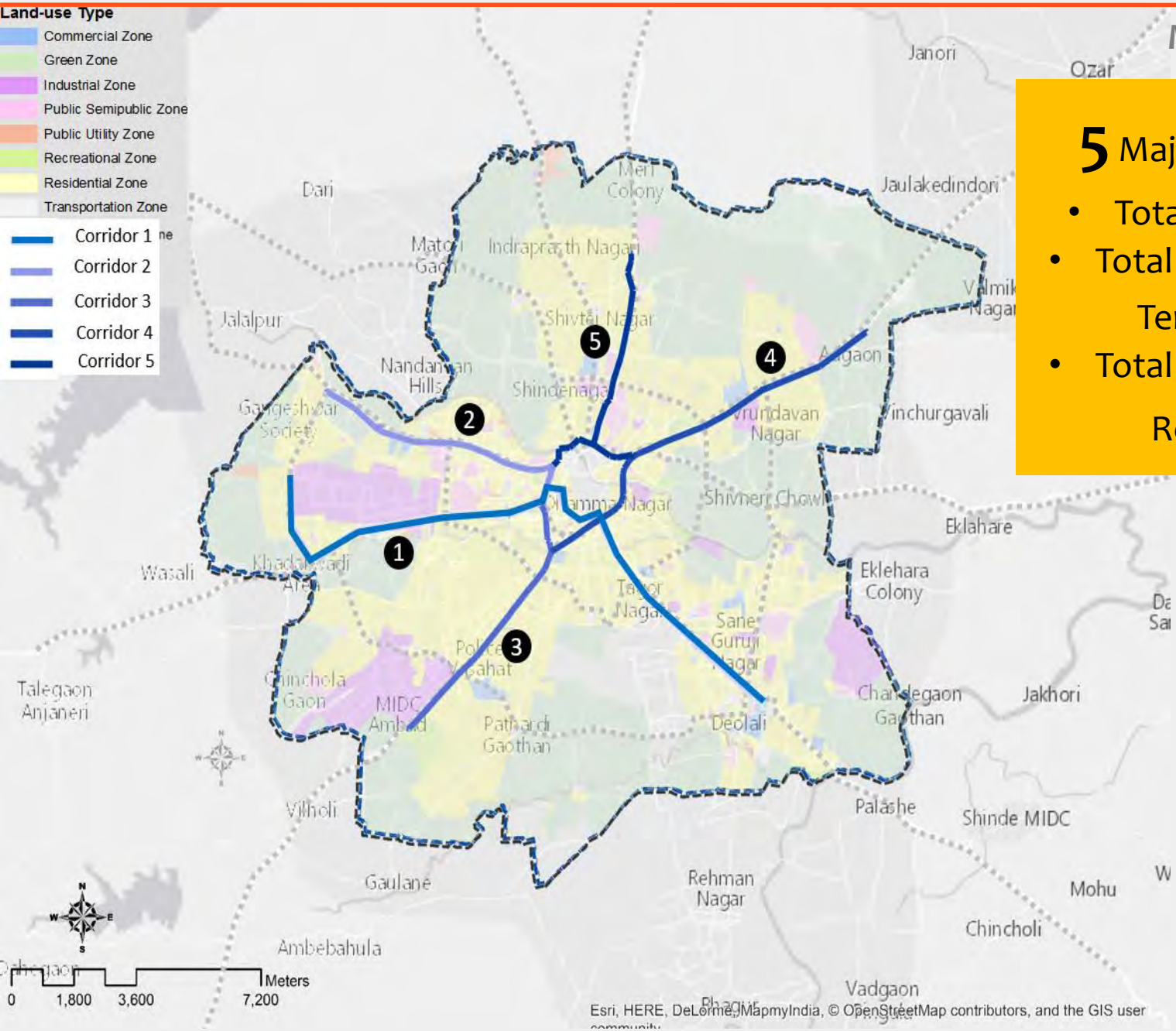
The TOD planning process includes:

- Travel Connections
- Building Scale & Orientation
- Public Spaces
- Parking


N
Peth
Dindori
Agra
Girnare
Gangapur
Aurangabad
Triambakeshwar
Mumbai
Pune
Lam
Legend
Export_Output_2
NMC_M_RB_ROADS
TYPE
Commercial Zone
Defence Zone
Green Zone
Industrial Zone
Public Semipublic Zone
Public Utility Zone
Recreational Zone
Residential Zone
Transportation Zone
WB
0 1 2 4 Km

Public Transport Strategy

- Route Rationalization And Fleet Augmentation
- Provide feeder bus services so as to improve the coverage
- Multi Modal Integration
- Proposal for mass transit corridors

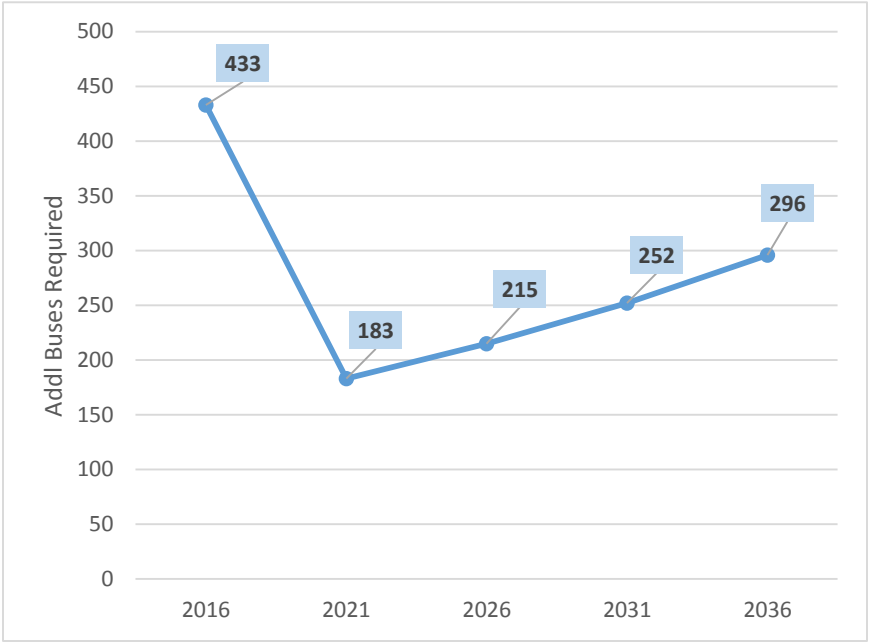


Major PT corridors

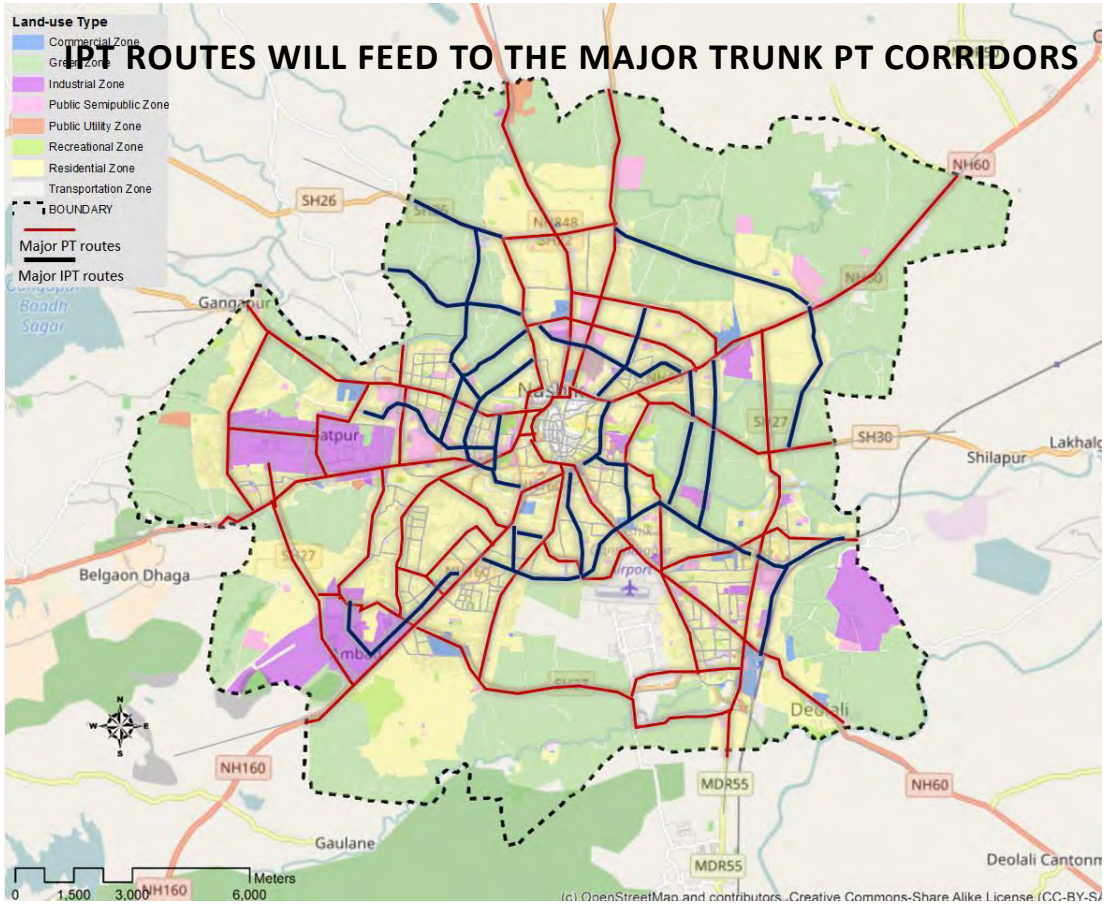
5 Major PT Corridors

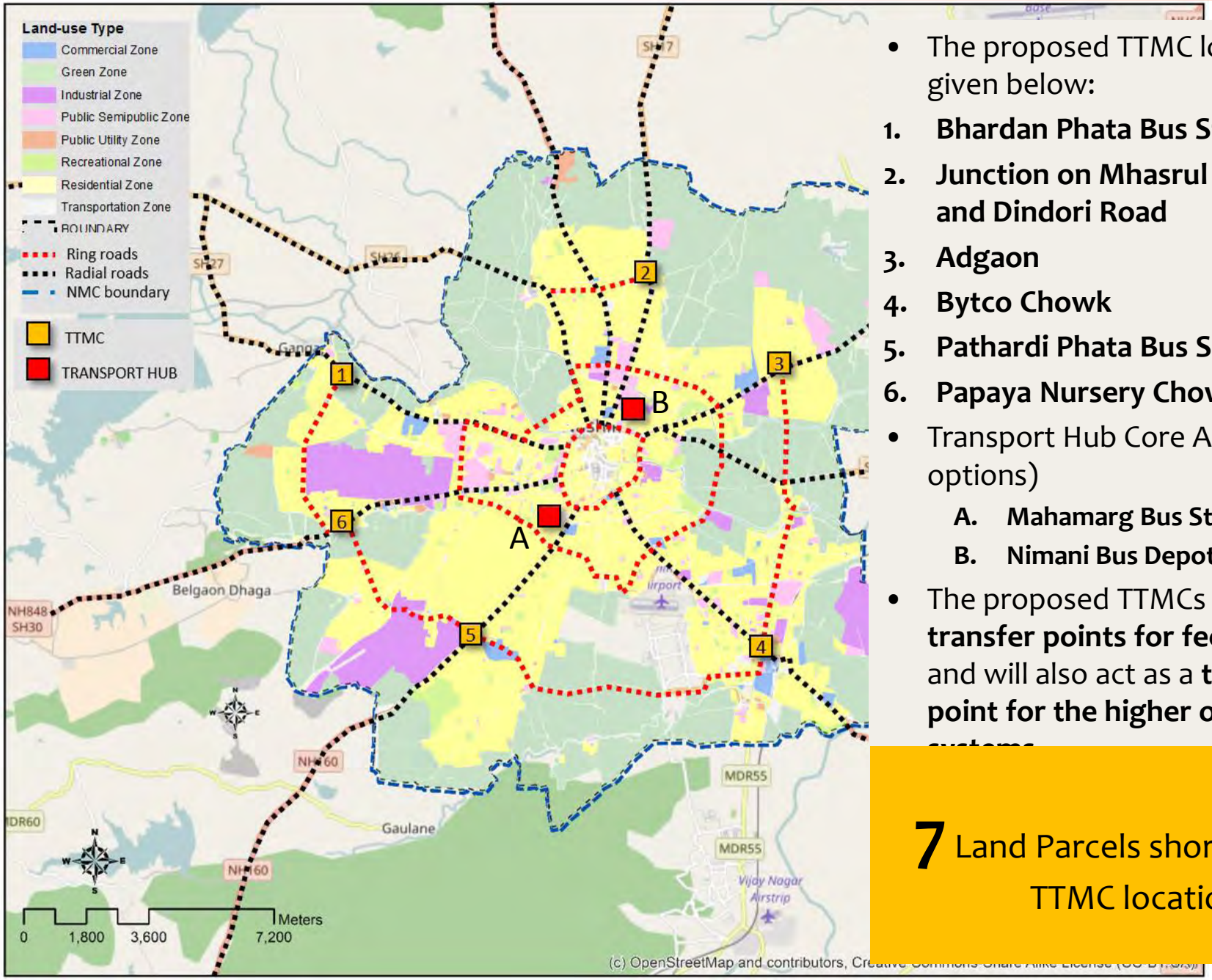
- Total Routes – **508**
- Total No of Routes for Termination **316**
- Total No of Routes for Retaining **192**

- **0.4** Buses per thousand population (CIRT norms)
- Existing Population : 17.45 Lakh (UMTC estimate 2016)
- Total Buses required (base year): **698** buses
- Additional requirement of buses: **455** Buses
- In 2036, fleet strength should be : **1329**



Route No.	Origin	Destination	Route Length (km)
1	Makhmalabad	Dugav	12
2	Hotel Sebal	Mandalik Mala	4.5
3	Mico	Hunumanwadi	3.5
4	Nandur	Mhasrul	10
5	Matori	Gangapur naka	4.5
6	Katya Maruti Chowk	Hirawadi	2
7	Mandalik Mala	Amrut Dham	4.5
8	Gangapur Naka	Mumbai Naka	4.5
9	Dwarka	DGP Nagar 1	2.7
10	Indira Nagar	Vijay Mamta	4.3
11	Vijay Mamta	Aurangabad Naka	4.1
12	Takli Phata	Sailani Baba	4.8
13	Nashik Railway Station	Eklahre	7.3
14	Lekha Nagar	Ambad Gaon	5
15	HDFC Chowk	Pipeline road	3.2
16	Dasak	Hanuman Nagar	3.5

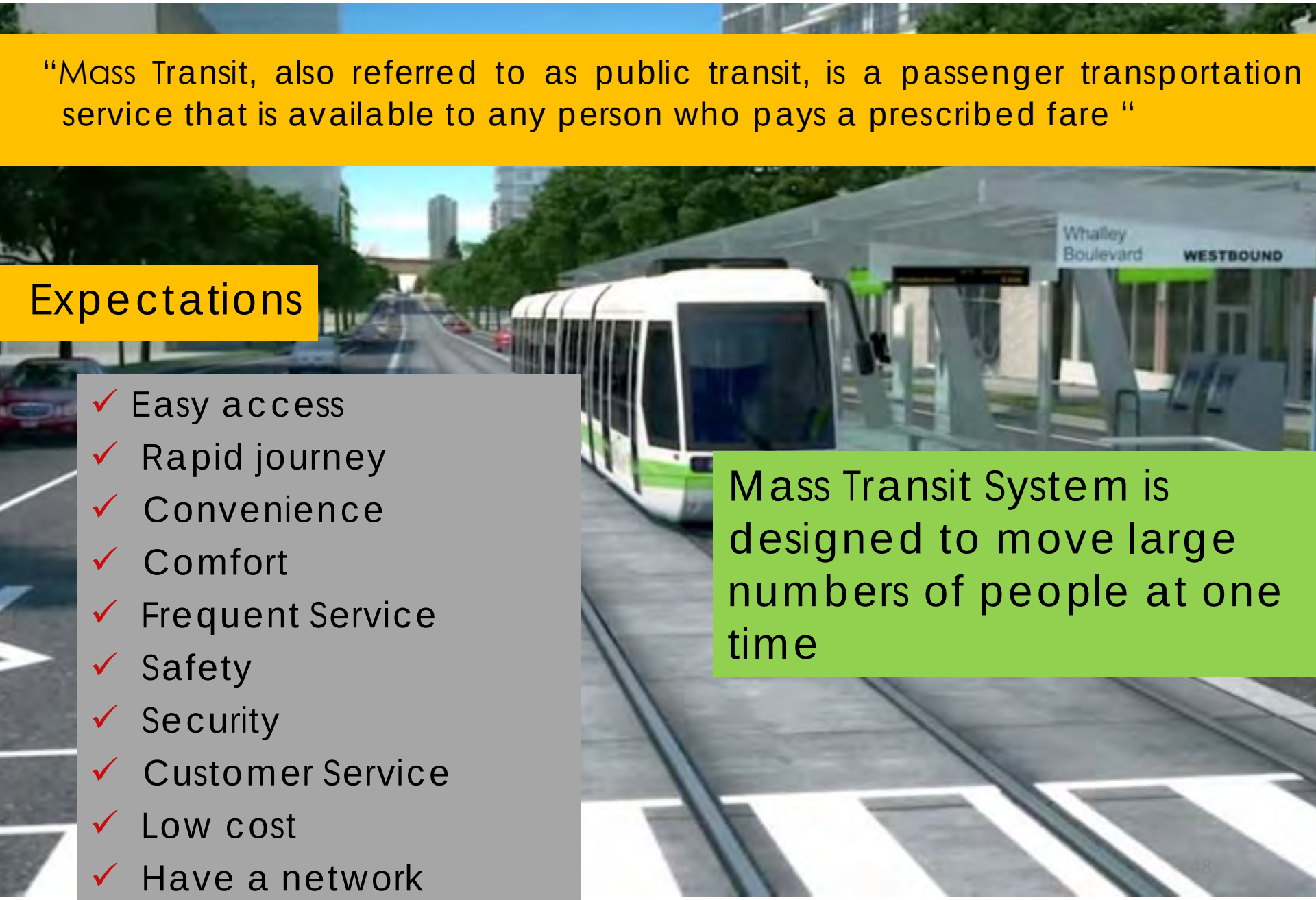




- The proposed TTMC locations are given below:
  1. **Bhardan Phata Bus Stop Junction**
  2. **Junction on Mhasrul Link Road and Dindori Road**
  3. **Adgaon**
  4. **Bytco Chowk**
  5. **Pathardi Phata Bus Stop Junction**
  6. **Papaya Nursery Chowk**
- Transport Hub Core Area (2 options)
  - A. **Mahamarg Bus Station**
  - B. **Nimani Bus Depot**
- The proposed TTMCs will act as a **transfer points for feeder routes** and will also act as a **terminating point for the higher order PT**

7 Land Parcels shortlisted for TTMC location

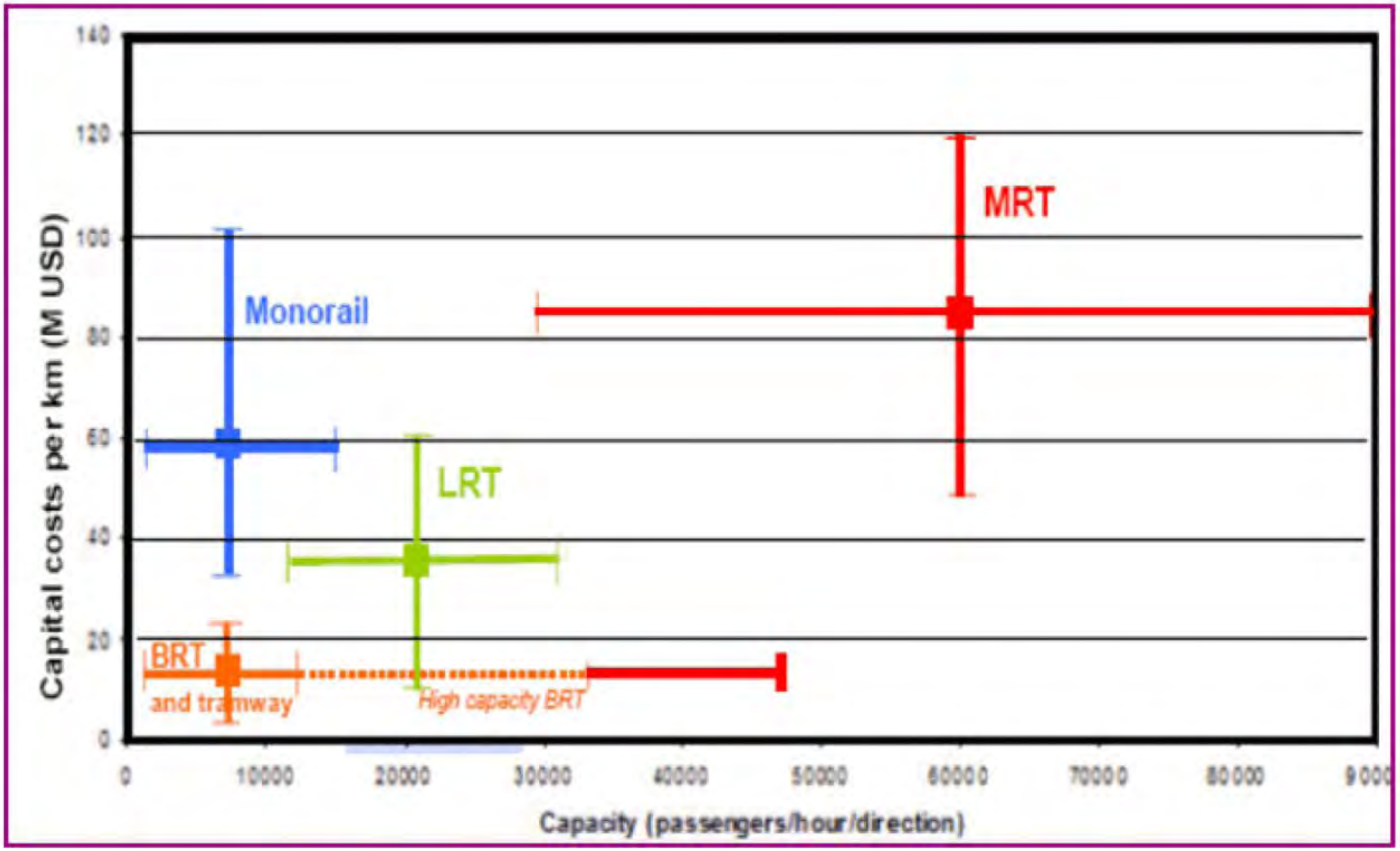
"Mass Transit, also referred to as public transit, is a passenger transportation service that is available to any person who pays a prescribed fare "



Expectations

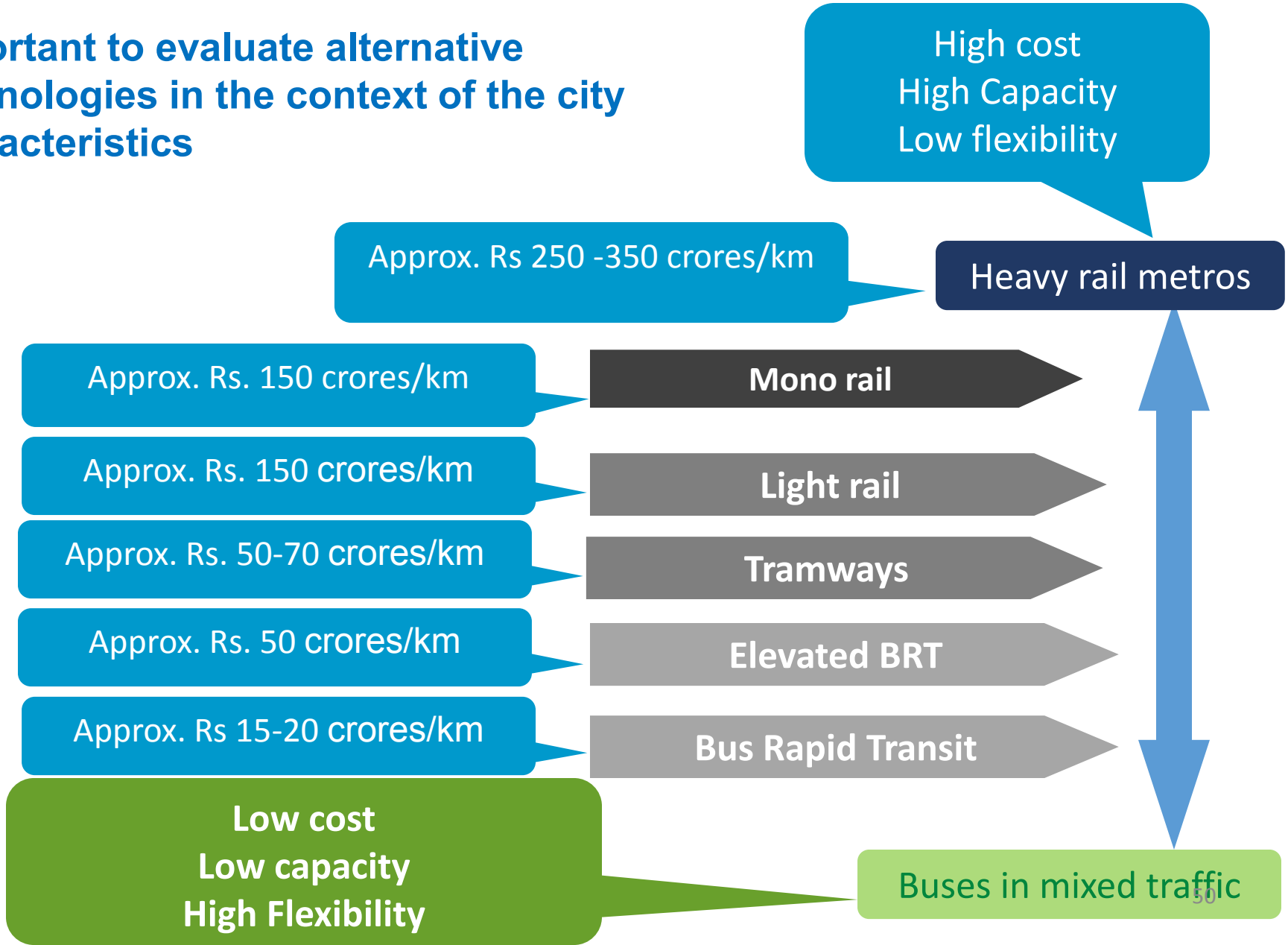
- ✓ Easy access
- ✓ Rapid journey
- ✓ Convenience
- ✓ Comfort
- ✓ Frequent Service
- ✓ Safety
- ✓ Security
- ✓ Customer Service
- ✓ Low cost
- ✓ Have a network

Mass Transit System is designed to move large numbers of people at one time


Capital costs per km (M USD)
140
120
100
80
60
40
20
0
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Capacity (passengers/hour/direction)
MRT
Monorail
LRT
BRT
and tramway
High capacity BRT

Selection Criteria

Important to evaluate alternative technologies in the context of the city characteristics



Selection Criteria

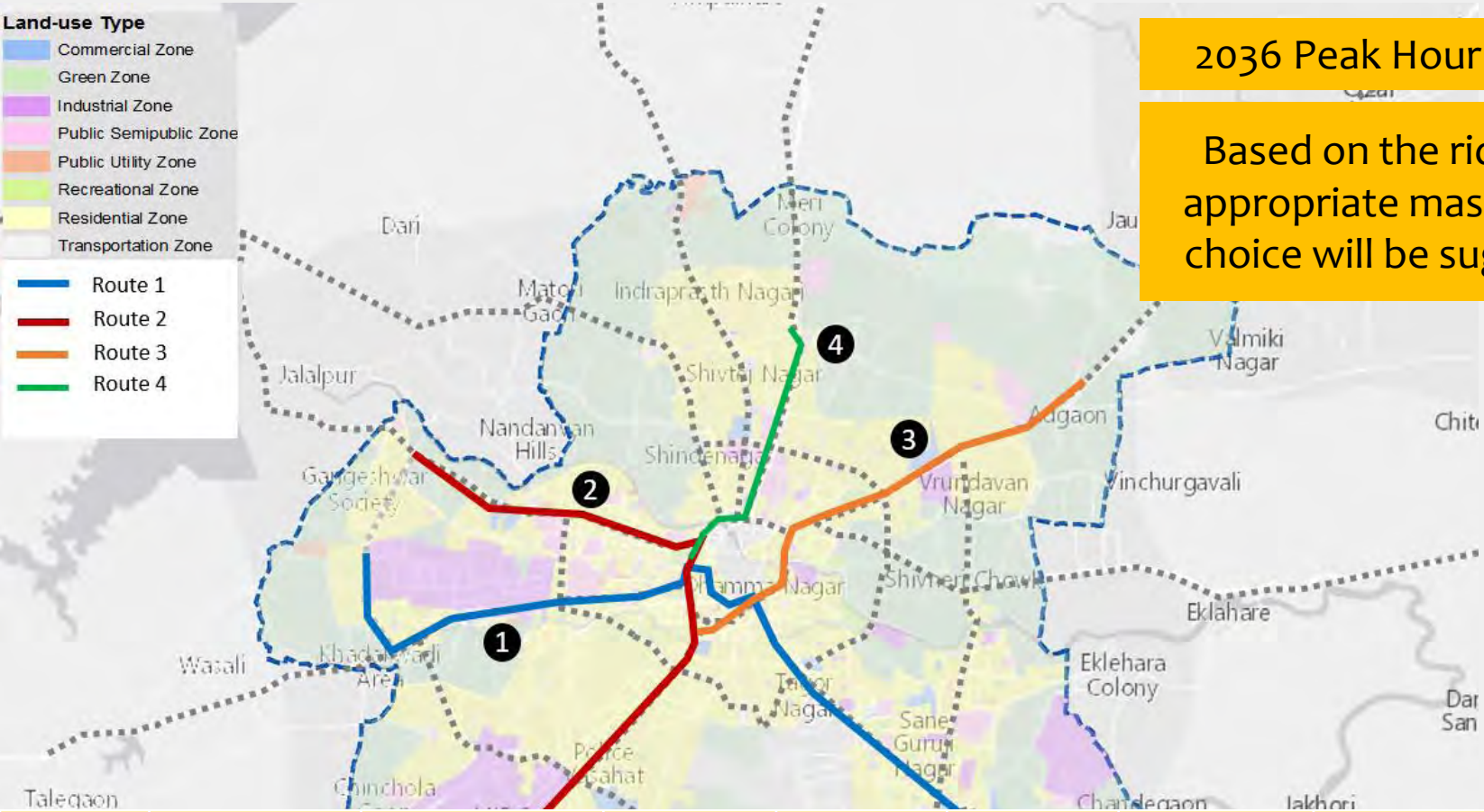
Mode Choice	Desirable PHPDT	Population (Million)	Average Trip Length (km)
Metro Rail #	>15000 for at least 5 km continuous length	>=2	>7-8
LRT primarily at grade	<=10000	>1	>7-8
Monorail	<=10000	>1	About 5-6
BRT	>=4000 and up to 20000	>1	>5
Organized City Bus Service as per urban bus specifications		>1 lac, 50,000 in case of hilly towns	>2 to 3

The Urban form dictates the final selection of technology



Public Transport Strategy

Proposal 4 –Mass Transit Options



2036 Peak Hour PPHPD

Based on the ridership appropriate mass transit choice will be suggested

Route no	From	To	Route Length (km)	2021	2026	2031	2036	Estimated MRT PHPDT
Route 1	Nashik Road Railway station	Shramik Nagar	17.8	Exclusive PT Lanes			High Capacity MRT System	8033
Route 2	Garware	Gangapur	15.8		Exclusive PT Lanes			3575
Route 3	Mumbai Naka	Adgaon	11		Exclusive PT Lanes			3137
Route 4	Mhasrul	CBS	6.9			Exclusive Bus lanes		2893

Road Network Strategy

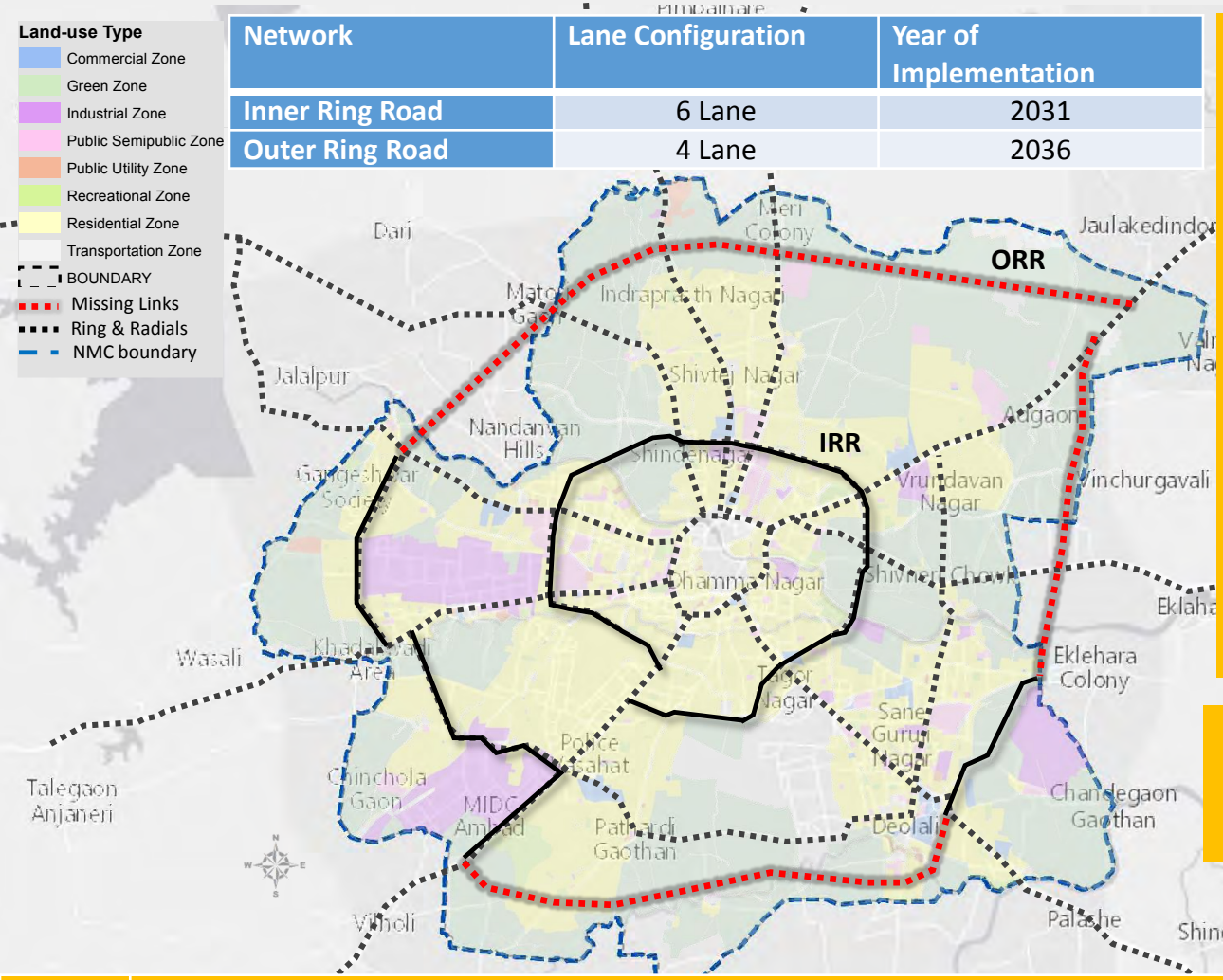
- Road Widening/Upgradation
- Development Of Missing Links/New Links/Ring Roads
- Road Infrastructure Development (River/Canal Bridges and ROBs)

Road Network Strategy

Proposal 5- Road Improvements

S.no	Name	Length in km	Lane Configuration				
			2016	2021	2026	2031	2036
A	**Mobility Corridors (with PT as priority)**						
1	Mumbai-Agra Highway	10.38	6		8		
2	Trimbak Road	12.34	4		6		
3	Nashik Pune Highway	9.30	4		6		8
4	Gangapur Road	7.95	4		6		
5	Dindori Road	6.30	4			6	
6	Peth Road	10.72	4				6
7	Old Agra Road	2.42	4		6		
8	Tilak Road	1.20	4		6		
		60.61					
B	**Other Roads**						
9	Amrutdham Road	2.47	2		4		6
10	Ambad-Kamathwade Link Road	1.40	2		4		6
11	Ambad-Satpur Link Road	5.35	4		6		
12	Ambad-Uttamnagar Road	2.34	3		6		
13	Amrutdham Road	4.98	2		4		
14	Ashoka Road	1.61	3	4			
15	Aurangabad Road	8.65	4			6	
16	ITI-Ambad Road	2.42	2			4	
17	Jail Road	4.90	4				6
18	Kamathwade-Trimurti Chowk Link Road	1.60	2		4		6
19	Lam Road	4.50	4			6	
20	Mahatma Nagar-Untawadi Road	1.16	4			6	
21	Panchvati Road	2.36	3		4		
22	Ramdas Swami Road	1.23	4				6
23	Ravi Shankar Road	1.49	2		4		6
24	Sri Shri Ravishankar Road	1.68	3	4			6
25	Tikde Colony Road	2.14	4			6	
26	Untawadi Road	2.05	4		6		6
27	Mahatma Nagar Road	2.03	4				6
28	Samathanagar Road	1.14	2			4	6
29	Satpur MIDC Road	3.56	3	4			

- **60 km of Mobility Corridors**
- **59 km of other roads**



Network	Lane Configuration	Year of Implementation
Inner Ring Road	6 Lane	2031
Outer Ring Road	4 Lane	2036

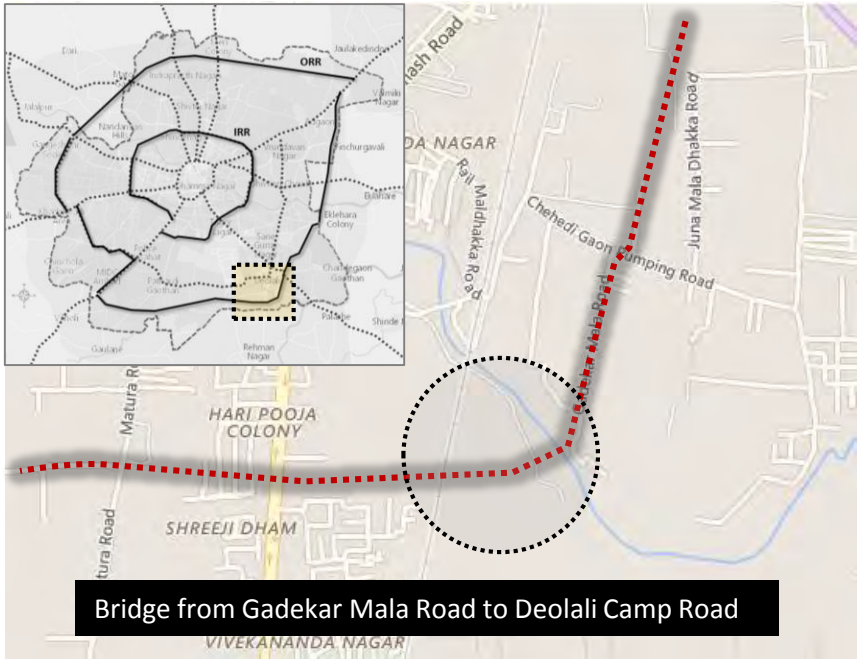
It is proposed to develop an outer ring road connecting

- Makhmalabad Road
- Amrutdham Road
- Ramdas Swami Marg
- Old Canal Link Road
- Mahatma Nagar Road

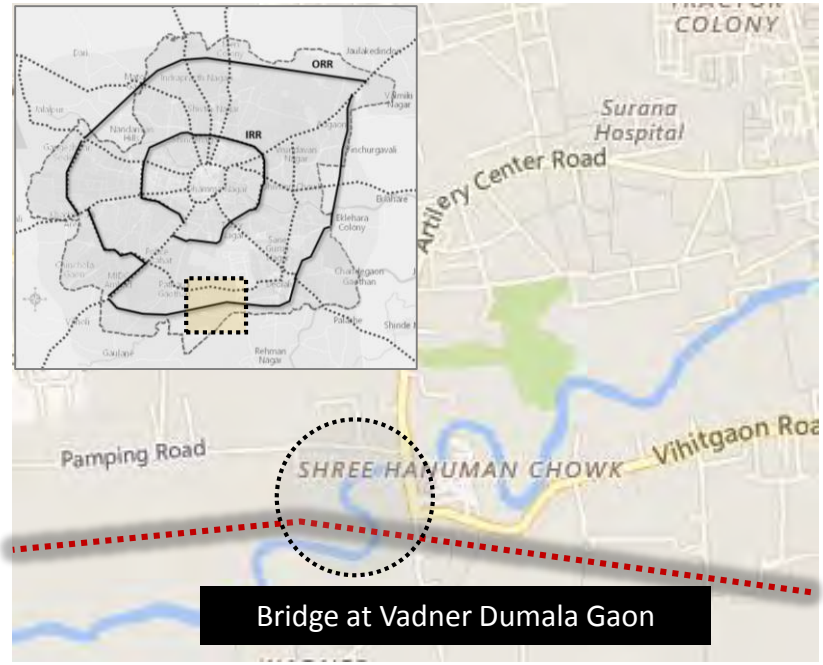
Approximate length :

58.25 km

S.no	Link Information – Missing Links to be developed for ORR	Length (km)
1	Sinnar Phata to Soubhagya Nagar	2.43
2	Soubhagya Nagar to Pandavlene	10.76
3	Bardan Phata to Makhmalabad (outside NMC)	4.75
4	Makhmalabad Naka to Adgaon	14.20
5	Adgaon to Sultanpur	4.50
6	Sultanpur to Panchak	2.56



Bridge from Gadekar Mala Road to Deolali Camp Road

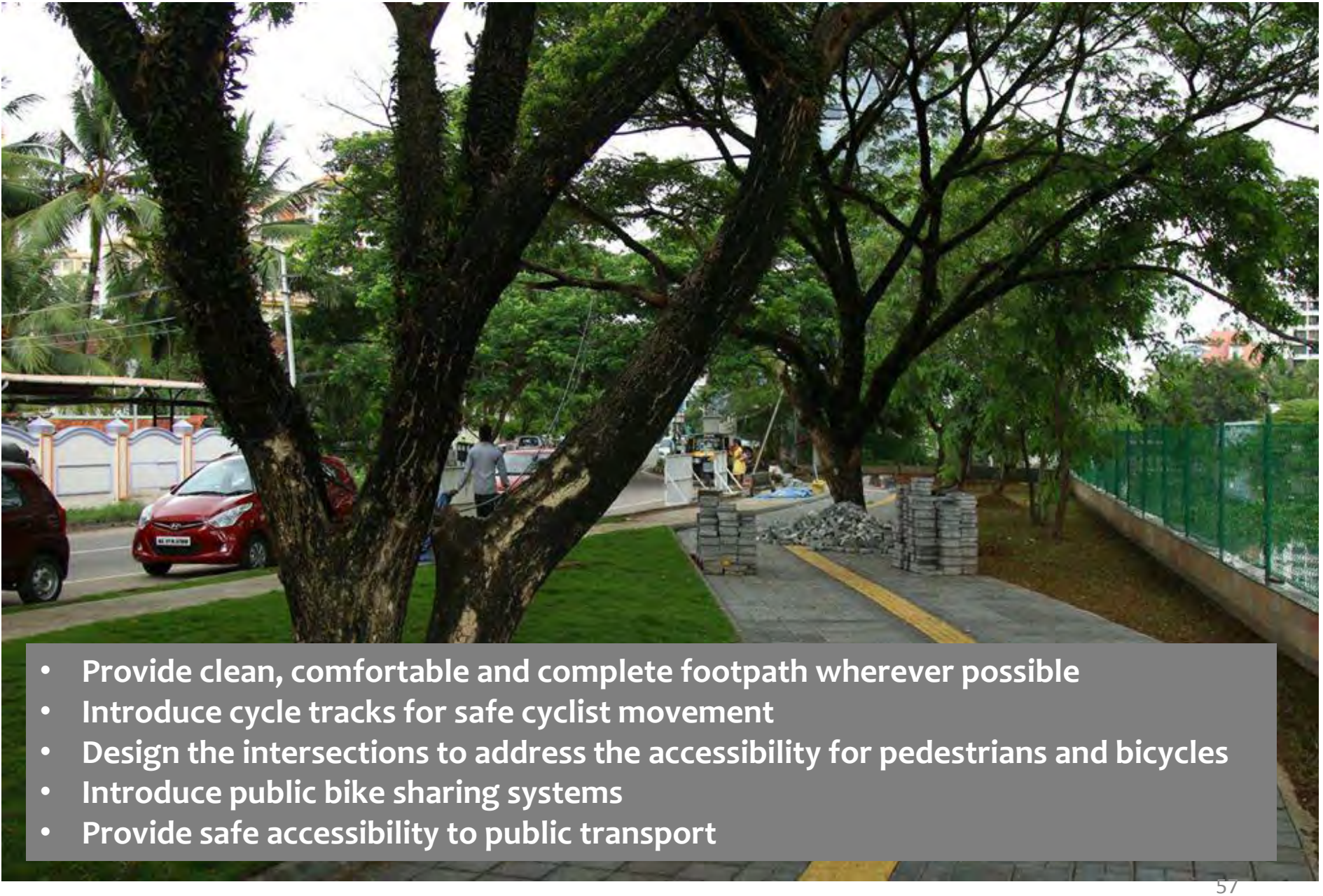


Bridge at Vadner Dumala Gaon

2 Bridges

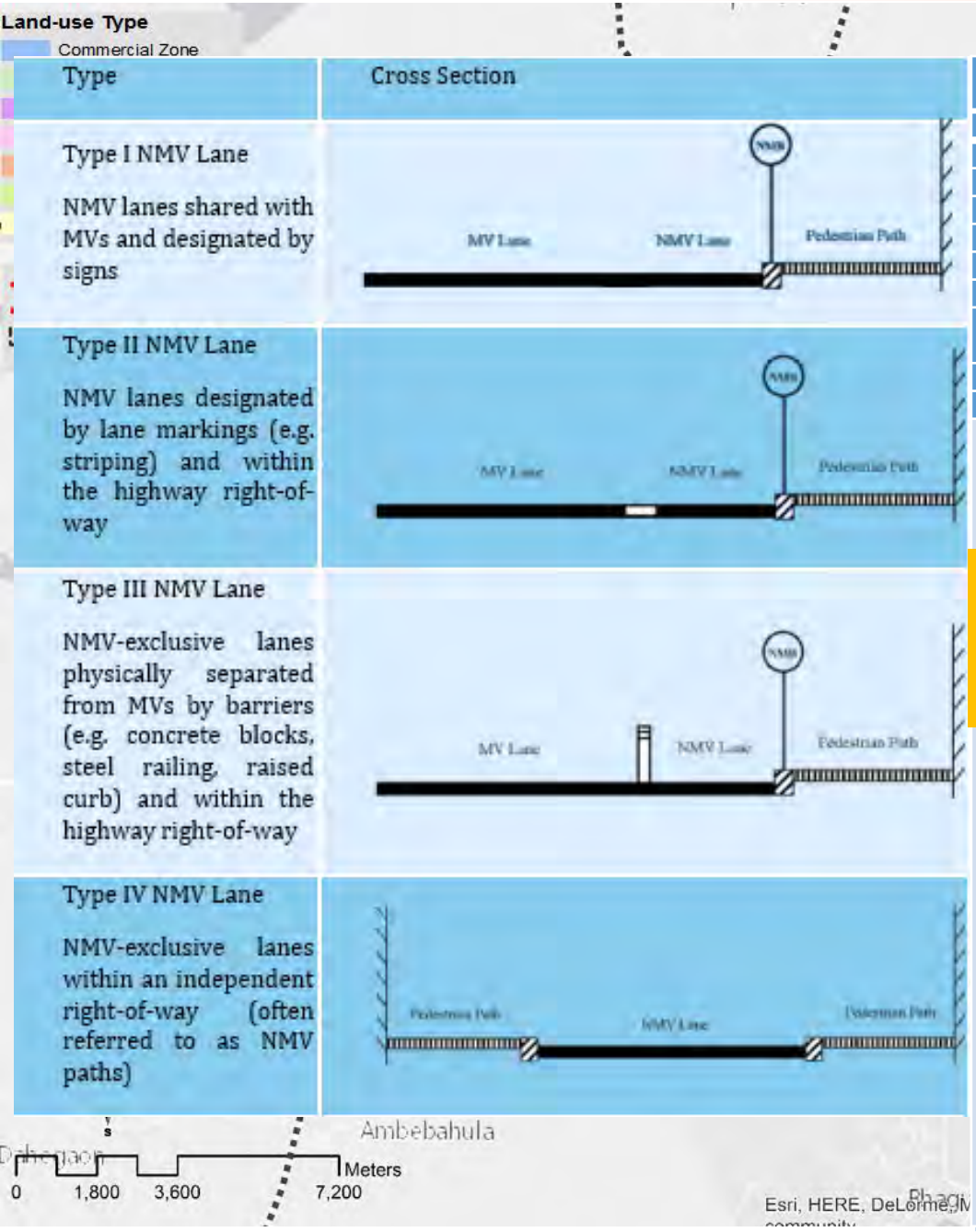
- Gadekar Mala Road to Deolali Camp Road Crossing
- Vadner Dumala Gaon

Non Motorized Transport Strategy



- Provide clean, comfortable and complete footpath wherever possible
- Introduce cycle tracks for safe cyclist movement
- Design the intersections to address the accessibility for pedestrians and bicycles
- Introduce public bike sharing systems
- Provide safe accessibility to public transport

S.no	Name	Stretch	Length (km)
38	Satpur MIDC road	Satpur Bus stand to Shramik Nagar	3.21
39	Pipeline Road	Pipeline road junction to Satpur MIDC	2.45
40	Gangapur Road	Pipeline road junction to Bardan Phata	2.81
41	NH3	Aurangabad Naka to Konark Nagar	4.06
42	Hirawadi Road	Katya Maruti To Hirawadi	2.02
43	Meri Link Road	Hirawadi to Makhmalabad road	2.92
44	Makhmalabad Road	Makhmalabad naka to Mandlik mala	1.78
45	Peth Road	Peth Naka to Rau Hotel	3.81
46	Dindori Road	Makhmalabad naka to Nimani	4.46
47	Ambedkar Road	Shivaji Chowk to Railway Station	0.52
48	Lam Road	Bytco Chowk to Deoliali	1.87
49	NH50	Dwarka to Shivaji Chowk	6.58
50	Sawta Mali Road	DGP Chowk to Indira Nagar	4.09
51	Wadala Pathardi road	wadala Naka to Pathardi	5.78
52	Pathardi Phata Road	Pathardi Phata to Pathardi	2.21
53	Jai Bhavani Road	Upanagar Bus Stop to Artilary Road	2.51
54	Arty Road	Lam Road to Jai Bhavani road	1.07
55	Datta Mandir Road	Datta Madir Chowk to Artilary road	1.00
56	Indira Nagar Road	Kalanagar bus stop to Lekha nagar bus stop	0.98
57	Ashoka Marg	Vijay Mamta to Wadala Pathardi road	1.96
58	Bhabha Nagar Road	Kathe Galli Chowk to Mumbai Naka	1.55

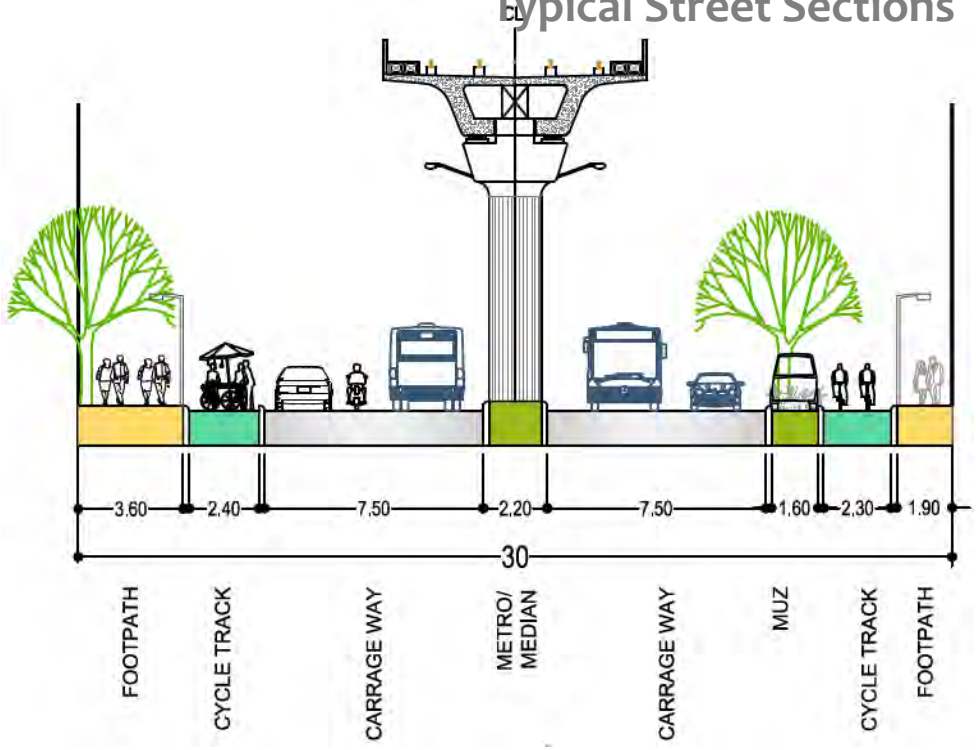


S. No	Name	Stretch	Length (km)
Shared NMV Lanes			
38	Lam Road	Bytco Chowk to Deoliali	1.9
39	NH50	Dwarka to Shivaji Chowk	6.6
40	Pathardi Phata Road	Pathardi Phata to Pathardi	2.2
41	Jai Bhavani Road	Upanagar Bus Stop to Artilary Road	2.5
42	Artilary Road	Lam Road to Jai Bhavani road	1.1
43	Datta Mandir Road	Datta Madir Chowk to Artilary road	1.0
44	Indira Nagar Road	Kalanagar bus stop to Lekha nagar bus stop	1.0
45	Ashoka Marg	Vijay Mamta to Wadala Pathardi road	2.0
46	Bhabha Nagar Road	Kathe Galli Chowk to Mumbai Naka	1.5

Total for **54 km of dedicated bicycle tracks** along with **93.5km of shared NMT routes**

NMT Only Corridor

Typical Street Sections



Dedicated NMT Corridor

Shared NMT Corridor

Transformation of Shihab Thangal Road

Before

Transformation of Shihab Thangal Road

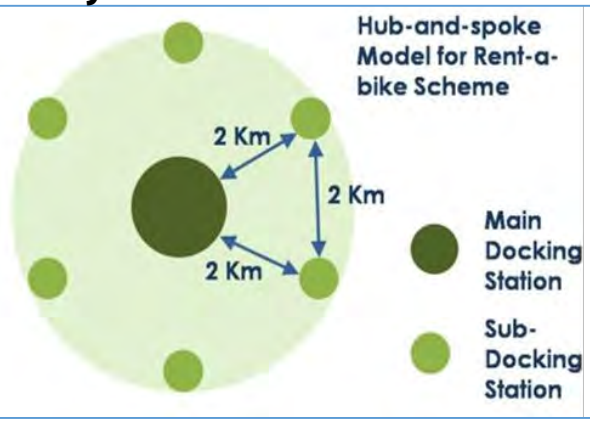
Transformation of Shihab Thangal Road

Transformation of Shihab Thangal Road

Transformation of Shihab Thangal Road

Transformation of Shihab Thangal Road

The system works on a hub-and-spoke model



Main Docking Station	Sub Stations
CBS	• Canada Corner • MG road • Pandit Colony • Golf Club
Shalimar	• Ravivar Karanja • Doodh Bazar • Bhadrakali • Sarda Circle • Dwarka
KTHM College	• Mahajan Garden • Saptarang Circle • Jehan Circle • College Road
Nimani Bus Stand	• Panchvati Karanja • Peth Naka • Ghat Area

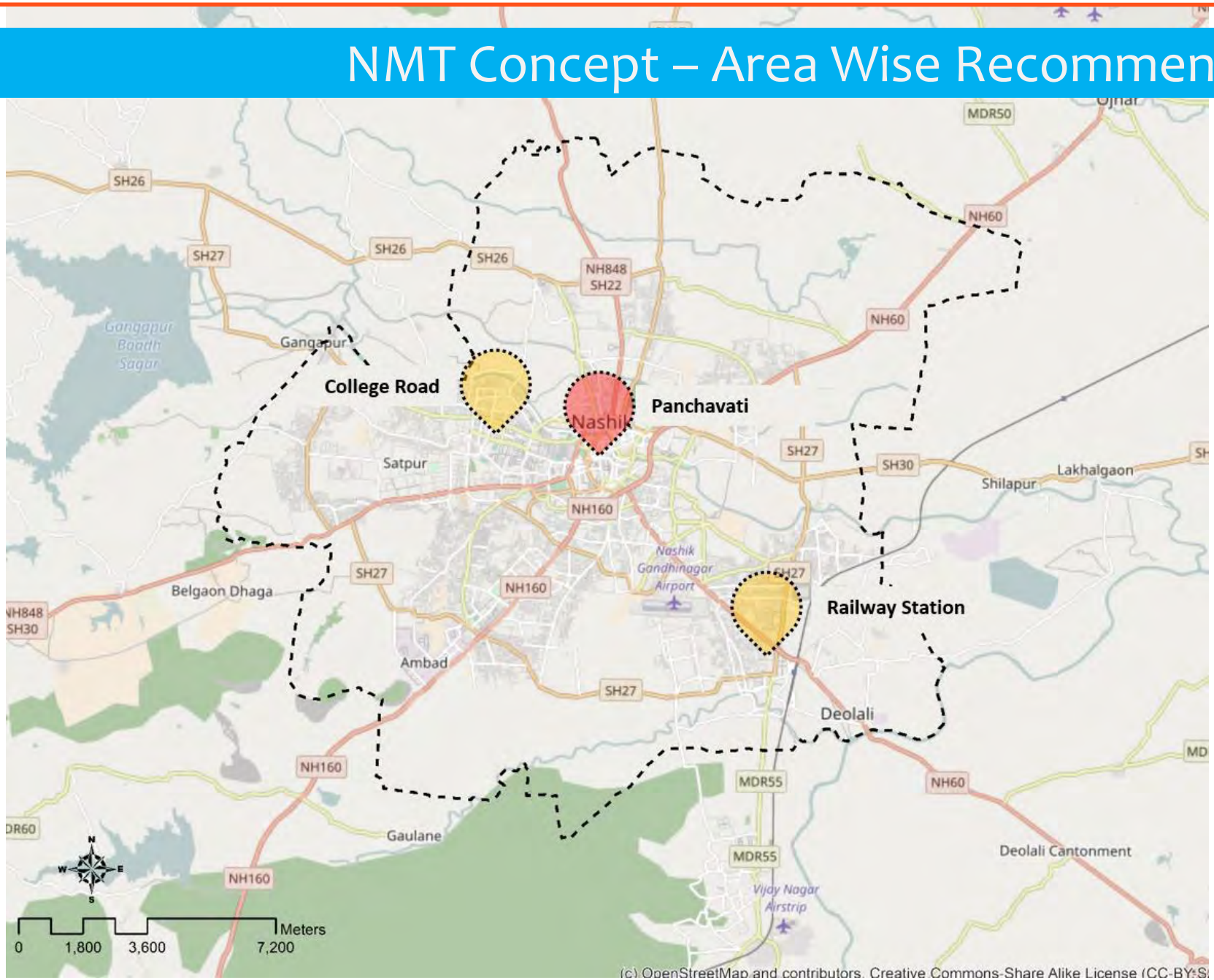
Total : **16** PBS Stations

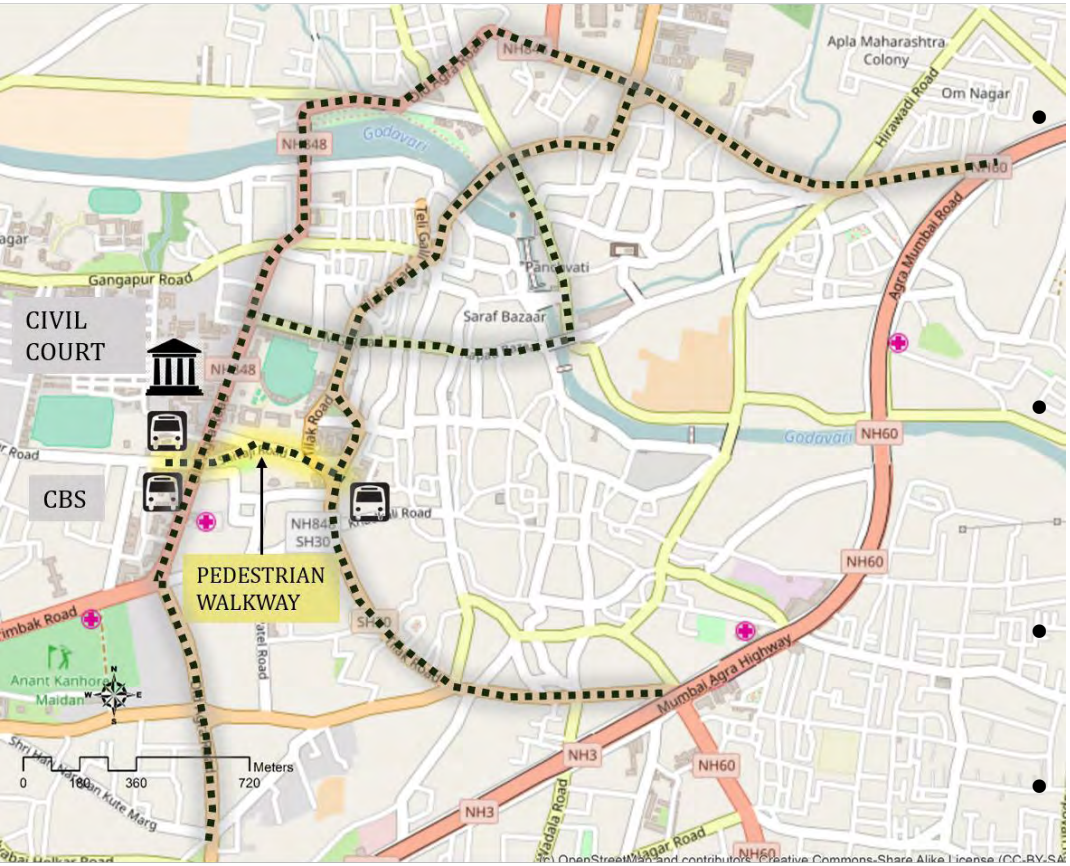
One main docking station and 6-7 sub-stations within a catchment area of 2.5 to 3 kms.

The main docking station can accommodate around **25-30 bicycles** and is usually installed **next to a transit node.**

The **sub-stations** are located nearby in **residential colonies, work centers or commercial hubs,** as the case may be

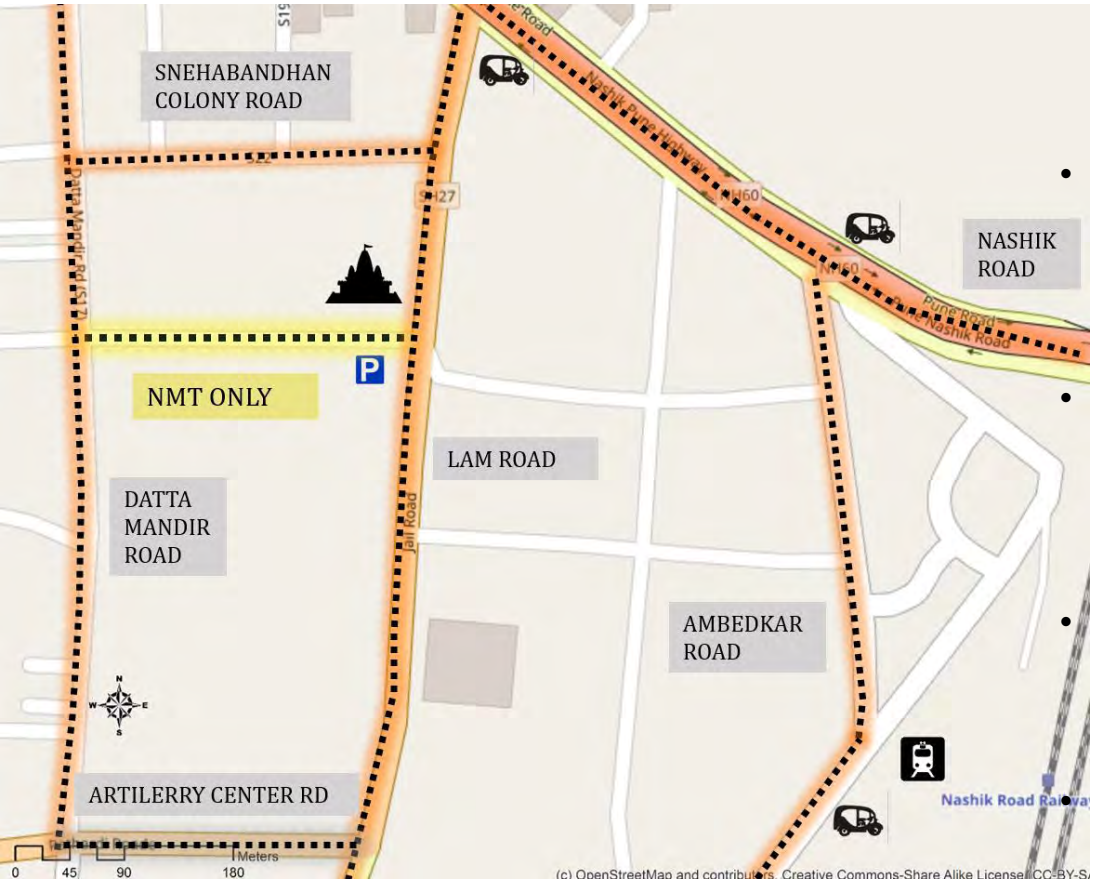
NMT Concept – Area Wise Recommendation



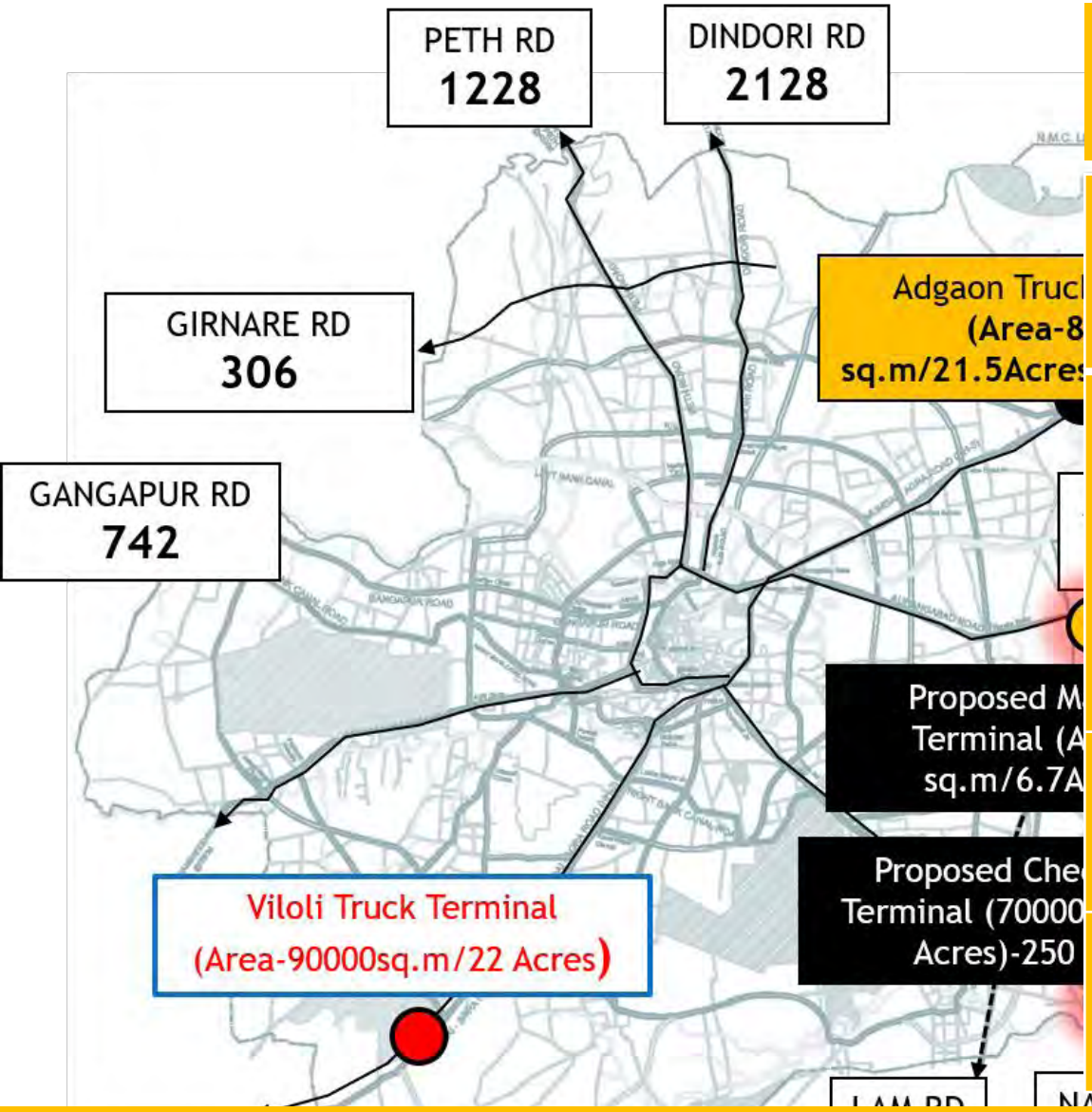


- **Shared bicycle lanes** for Old Agra Road along Civil Court and District Collector's Office.
- Between CBS Bus stand and Shalimar bus, **elevated pedestrian walkway** is proposed, with **access at CBS Chowk, Amdebkar statue, Shalimar Hotel and Shalimar Bus stop.**
- **No dedicated cycle tracks** are proposed for this area and carriage way is shared with regular traffic.
- **Barricaded footpaths** should be provided near ITI College, Ravivar Karanja road, MG road.
- Holkar Bridge to Gadge Maharaj Bridge Stretch is converted to P**edestrian only stretch during the weekend.** Vehicular traffic is diverted on Panchavati Karanja to Gadge Maharaj Bridge Stretch. Footpaths are proposed in the roads connecting to Kalaram Mandir.

- **Four wheeler traffic should be restricted** on **Canada corner to PTA Kulkarni Chowk** Stretch during peak hours and can be diverted on Gangapur road and other adjacent parallel streets.
- **No parking** should be allowed on **College Road.** Excess parking can be provided on Ramdas colony road and Kusumagraj Marg.
- Raised footpaths are proposed for all the streets and all the encroachments should be removed. Authorized vending places should be provided for street vendors by converting the parking spaces into vending places.
- **Shared bicycle lane** are provided **on all the three roads.**



- **Safe and encroachment free footpaths** should be provided from Nashik railway station to Nashik-Pune Highway.
- **Auto Stand near Shivaji Chowk has to be shifted** under flyover which is currently located in the junction area which will help utilized the area currently occupied by autos.
- **Somani Garden road is to be converted to NMT only corridor** and traffic on this road to shifted to adjacent parallel street (Sneha Bandhan Colony and Artillery Center road)
- **Pedestrian crossings** should be provided on **Nashik Pune Highway** for people to access the vegetable market.
- Authorized vending places are to be provided to the street vendors by converting on-street parking lots hence providing encroachment free footpaths.
- Raised footpaths are proposed in the area along with shared bicycle lanes.



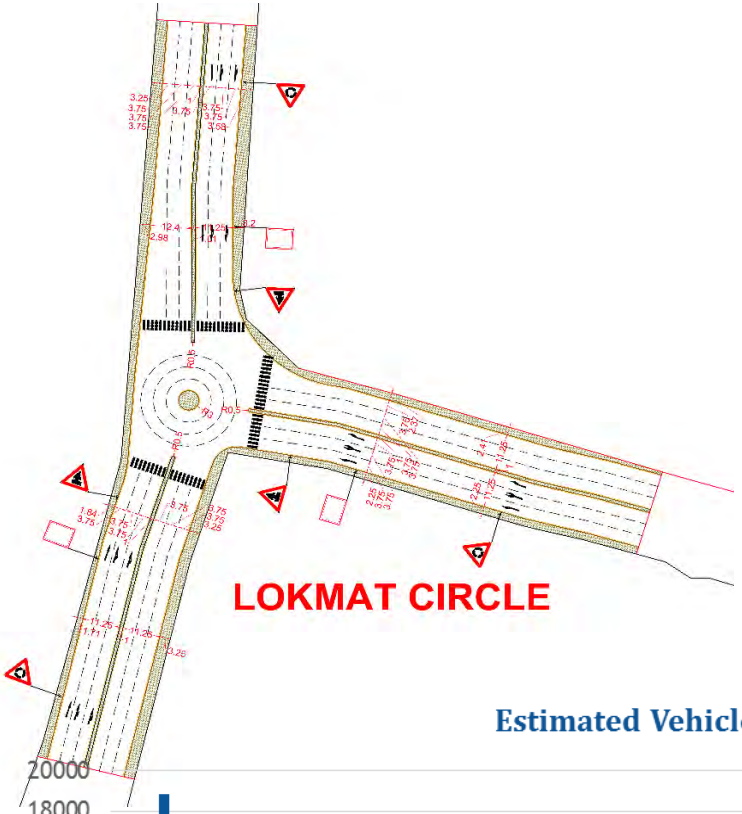
3 truck terminal locations

	Survey No	Village	Area (Hectare)	Capacity
1	1727p,1729p, 2003p, 2004, 2005p,2006p, 2008p, 2009p, 2010p, 2011,2012, 2013p, 2024p, 2025p	Adgaon	232110	350 trucks
2	23p, 24p, 25p, 26p, 28p, 120p,126p	Cheddi	74295	250 trucks
3	65p, 69p	Mannur	27900	100 trucks

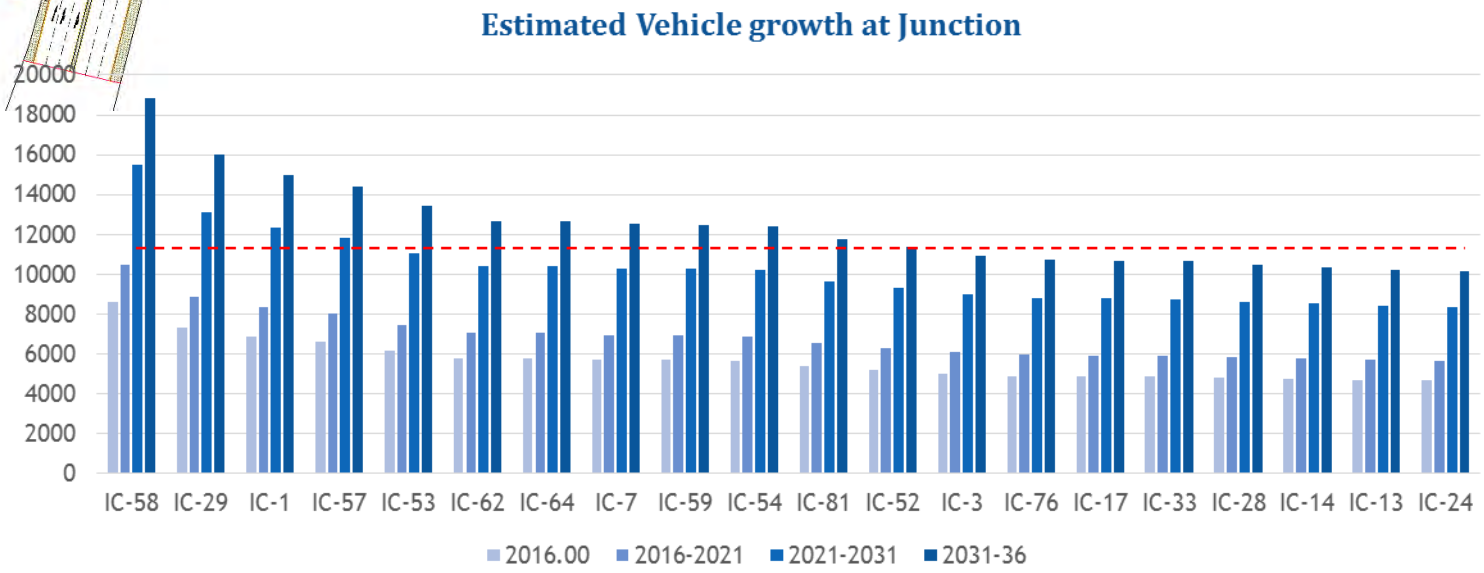
Freight Vehicles should not be allowed in the city between 8:00am-8:00pm

Traffic Engineering and Management Strategy

- Junction Improvements
- Off Street Parking facilities
- Signage
- One way Plans



S. No	Location Name	PV2	Warrant for improvement	Proposed Improvement
1	CBS	8.2	Yes	Subway
2	Ravivar Karanja	0.6	Yes	Signalization
3	Canada Corner	1.3	Yes	Signalization
4	Datta Mandir	8.8	Yes	Subway
5	Bytco Chowk	46.9	Yes	Subway
6	Shivaji Statue	0.8	Yes	Signalization
7	Malegaon Bus Stand	2.0	Yes	Signalization
8	Ashok Stambh	3.1	Yes	Signalization
9	Shalimar	3.7	Yes	FOB
10	Nimani	11.4	Yes	Signalization



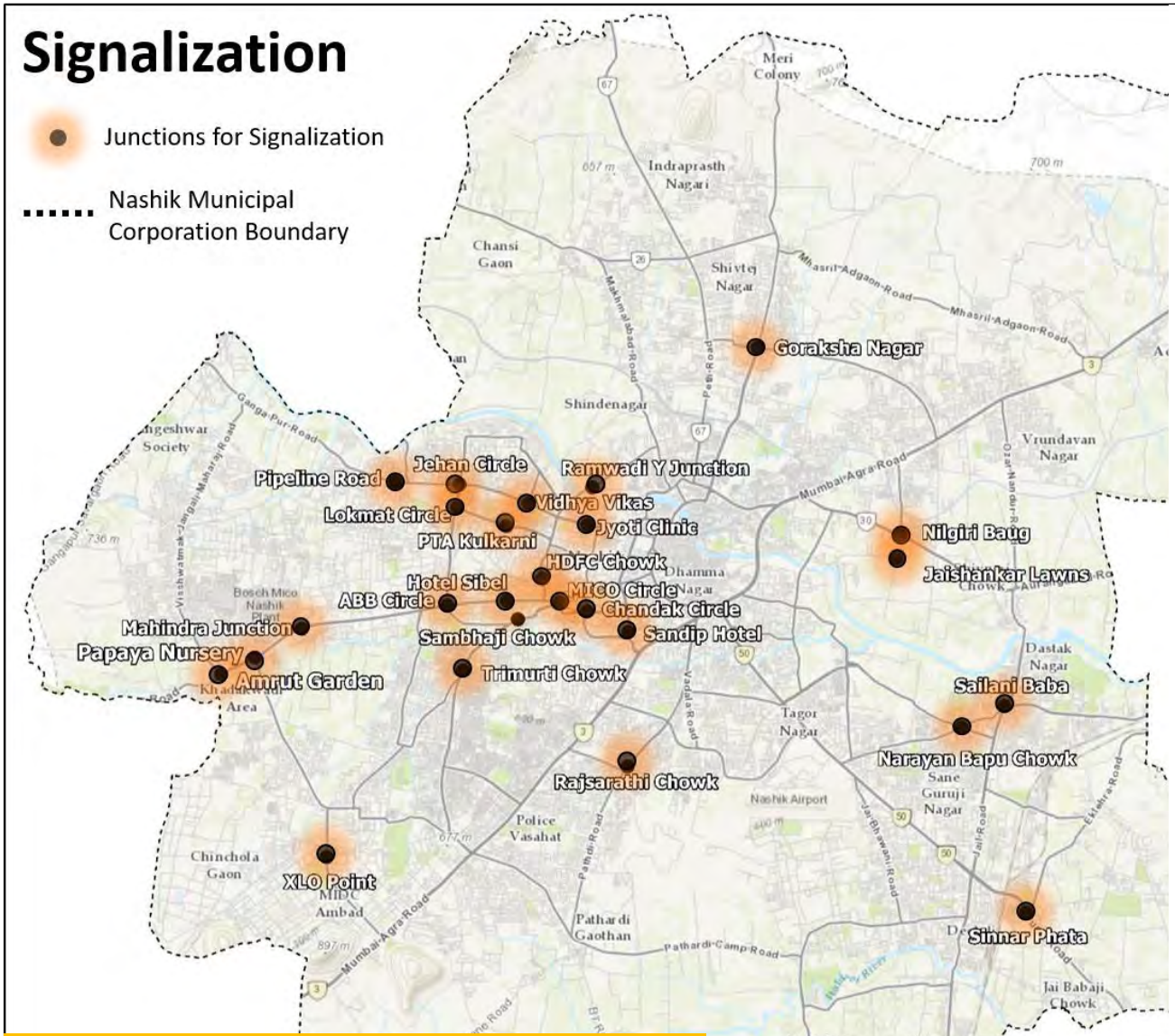
Traffic Engineering and Management Strategy

Proposal 15- Junction Improvements

S.no	Name of the Junction	2016	2021	2026	2031	2036
1	CBS	Signalization	Grade Separation	Grade Separation	Grade Separation	Grade Separation
2	Modak Point	Signalization	Grade Separation	Grade Separation	Grade Separation	Grade Separation
3	Datta Mandir Chowk	Signalization	Grade Separation	Grade Separation	Grade Separation	Grade Separation
4	Vijay Mamata Signal	Signalization	Grade Separation	Grade Separation	Grade Separation	Grade Separation
5	Khadkali Chowk	Rotary	Rotary	Grade Separation	Grade Separation	Grade Separation
6	Kathe Galli	Signalization	Signalization	Grade Separation	Grade Separation	Grade Separation
7	DGP Nagar	Signalization	Signalization	Signalization	Grade Separation	Grade Separation
8	Sinnar Phata	Signalization	Signalization	Signalization	Grade Separation	Grade Separation
9	Dwaraka	Rotary	Signalization	Signalization	Signalization	Grade Separation

Junctions for Geometry Improvement

1. Bytco Chowk
2. CBS
3. Modak Point
4. Datta Mandir Chowk
5. Vijay Mamata Signal
6. ITI Chowk
7. City Center Mall Junction
8. Shubham Park
9. Ingale Nagar Chowk
10. Khadkali Chowk
11. Kathe Galli
12. Dwaraka Chowk
13. Peth Naka
14. DGP Nagar
15. Shivaji Putala Chowk
16. Mico Circle
17. Gadkari Chowk
18. Thatte Nagar



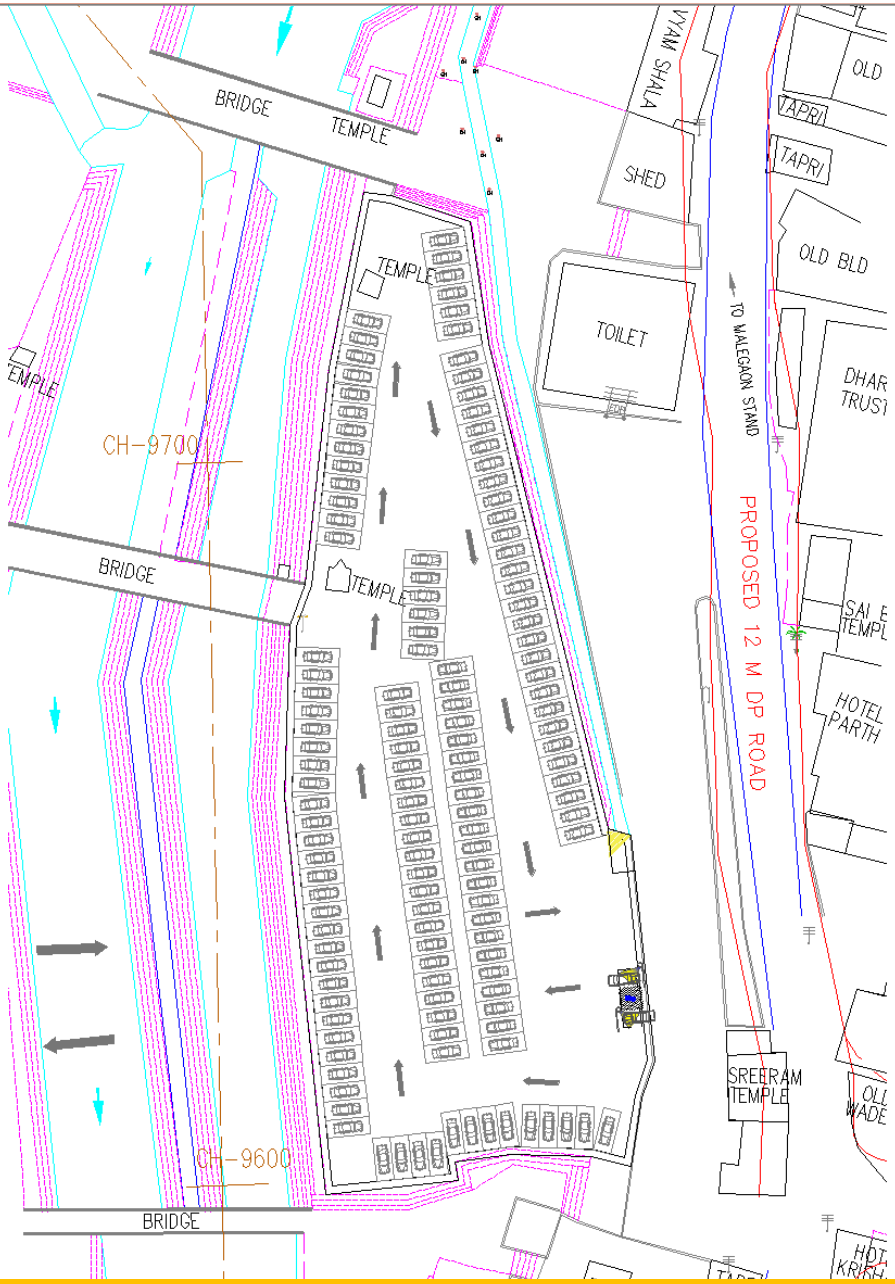
- Amrut Garden
- Jyoti Store Chowk
- Thatte Nagar
- Jehan Circle
- Pipe Line Road Junction
- Sambhaji Chowk
- Sailani Baba
- Narayan Bapu Chowk
- Sandip Hotel
- Mico Circle
- Chandak Circle
- Rajsarthi Chowk
- HDFC Chowk
- PTA Kulkarni Chowk, College road
- Lokamat Circle, Bhosala
- Jaishankar Chowk
- Hotel Sible
- Nilgiri Baug
- ABB Circle
- Sinnar Phata
- XLO Point
- Ramwadi Y Junction
- Goraksha Nagar
- Mahindra Junction
- Papaya Nursery

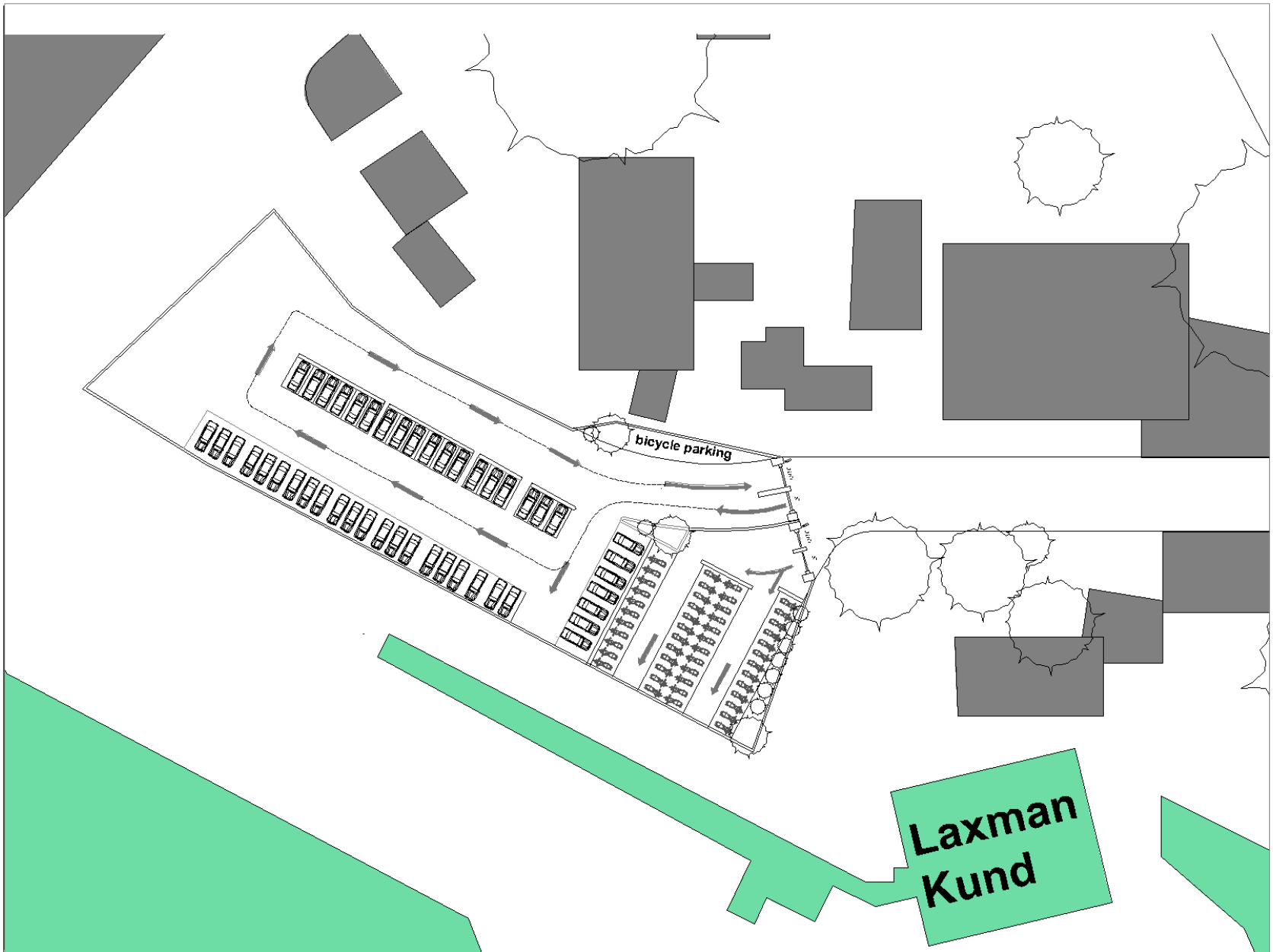
26 locations

Map not to scale

Following are the general Traffic management measures.

- Proper sign boards should be provided at important junctions, arterial/sub arterial roads, entry/exit points of market areas, cordon points, accident prone locations, school/college zones and other commercial areas.
- Zebra crossings, Lane Markings and Stop lines should be marked on all arterials and sub arterial roads.
- Pedestrian crossings should be provided at mid-blocks near school/college zones and major commercial areas. Pelican signals should be installed at such places. An exclusive pedestrian phase should be provided for safe pedestrian crossing with a cycle time of at least 15 seconds.
- Pedestrian refuge islands should be provided at wider junctions.
- Parking should be restricted at least 50-100m near to the junction on all the approach roads.
- Hawkers and Vendors should be restricted at least 50-100m near to the junction on all the approach roads and from using footpaths.
- Bus stop and Auto/Taxi stand has to be shifted 50-100m away from junctions
- Commercial vehicles (except Goods Auto) should not be allowed during peak periods inside the city which should be stopped at all Outer Cordons.
- Before implementation of Traffic Management Schemes, traffic awareness programmes shall be organized.


BRIDGE
TEMPLE
SHED
OLD
TAPRI
TAPRI
OLD BLD
TOILET
TO MALEGAON STAND
DHAR
TRUST
TEMPLE
TEMPLE
CH-9700
BRIDGE
TEMPLE
PROPOSED 12 M DP ROAD
SAI E
TEMPL
HOTEL
PARTH
SREERAM
TEMPLE
CH-9600
BRIDGE



Chatur Sampraday Akhada

Traffic control devices such as:

- Centre line,
- Traffic lane lines,
- Stop lines,
- Pedestrian crossings,
- Parking space limit,
- Kerb marking for visibility,
- Obstruction marking etc

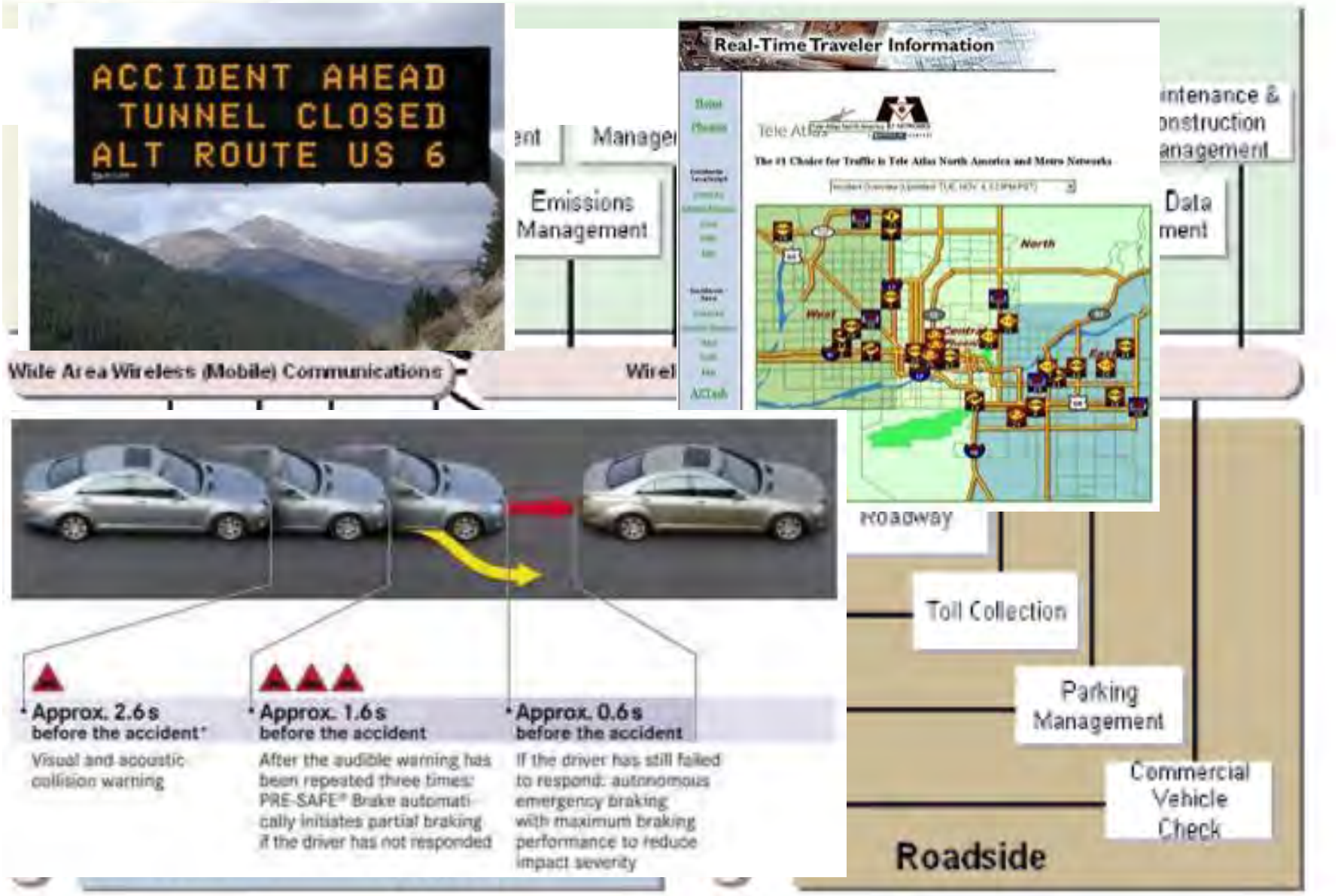
All the traffic signs should be facilitated as per the guidelines provided in IRC:67-2001.

Travel Demand Management Strategy

Subsidizing transit costs for employees or residents.
Car parking controls and pricing
Flex-time work schedules with employers to reduce congestion at peak times
Congestion pricing tolls during peak hours.
Road space rationing by restricting travel at certain times and places.
Workplace travel plans
Roadspace reallocation, aiming to re-balance provision between private cars and other sustainable modes
Introducing active trip reduction programs
Public education and awareness programs
Parking Strategies

Technological Strategy

- Intelligent Transport Systems
- Area Traffic Control Centers


ACCIDENT AHEAD
TUNNEL CLOSED
ALT ROUTE US 6
Real-Time Traveler Information
Emissions Management
Wide Area Wireless (Mobile) Communications
Toll Collection
Parking Management
Commercial Vehicle Check
Roadside
Approx. 2.6 s before the accident*
Visual and acoustic collision warning
Approx. 1.6 s before the accident
After the audible warning has been repeated three times: PRE-SAFE® Brake automatically initiates partial braking if the driver has not responded
Approx. 0.6 s before the accident
If the driver has still failed to respond: autonomous emergency braking with maximum braking performance to reduce impact severity

Given that Nashik city has been selected for Smart City project, ATCS as a smart feature, can be implemented on a major PT corridors. **Part of old Agra Road from Mumbai Naka to Ashok Stambh is suggested for the pilot.**

4 signalized junctions

- **Gadkari Chowk**
- **Modak Point**
- **CBS Chowk**
- **Meher Chowk**

Unmanned Junctions:

- **Ashok Stambh**
- **Sandeep Hotel Chowk**

Projects evolved in CTTP

A Multi - pronged Urban Transport Strategy

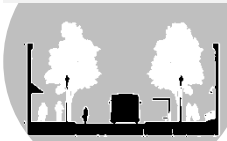
Proposed fleet of 1329 for the Yr 2036 (455 buses in immediate term)

1 PUBLIC TRANSPORT ENHANCEMENT

2 HIGH CAPACITY TRANSIT SYSTEM

Based on the PHPDT values, the implementation of an appropriate Mass Transit System on 4 Corridors (51.5 km) has been envisaged

3 STREET DESIGN



Removing encroachments widening where there is a dire need
Better signage & road markings.

4 PEDESTRIAN

Provision of footpath facilities across 150 km of road stretch.

5 BICYCLE

54 km of dedicated bicycle tracks & 93.5km of shared NMT routes
PBS with docking stations located near major activity centers.

6 TRANSIT ORIENTED DEVELOPMENT

High density development along transit corridors
A TOD study to be initiated to identify the appropriate TOD strategy.

Project Costing

S. No7	Projects	Total Cost (in Crores)	Phasing Rs. (in Crores)			
			2016-2021	2021-2026	2026-2031	2031-2036
1	Improvement of Road Network	760.13	86.63	82.05	100.63	490.83
2	Improvement of Non-Motorised Transport Facilities	184.23	184.23	0.00	0.00	0.00
3	Improvement of Public Transport System	2961.65	726.05	348.60	130.80	1756.20
4	Improvement of Freight Transportation System	95.10	73.41	21.69	0.00	0.00
5	Intelligent Transportation System Facilities	130.55	30.94	26.61	13.78	59.22
6	Improvement of Parking Facilities	4.34	4.34	0.00	0.00	0.00
7	Overall Comprehensive Traffic and Transportation Plan Proposals	4135.99	1105.59	478.95	245.21	2306.25

Project Priority	Cost(Crores)(INR)
Short Term Projects	1087.88
Medium Term Projects	152.29
Long Term Projects	2895.82
Total Cost	4135.99

Service Level Benchmarks for Horizon Year

	Overall Level of service	
Public Transport Facilities	2	The City has public transport system which may need considerable improvements in terms of supply and coverage.
Pedestrian Infrastructure Facilities	1	The city has pedestrian facilities which may need considerable improvements.
NMT Facilities	2	There is no designated NMT facility available which can take care of safety and comfort issues for NMT modes in Nashik.
Level of Usage of ITS facilities	2	The study area lacks adequate ITS facilities.
Travel speed along major corridors	2	Small increase in traffic causing substantial increase in approach delay and hence, decrease in arterial speed.
Availability of Parking Spaces	2	The study area authorities need to initiate immediate actions with respect of providing paid parking spaces and demand management for parking.
Road Safety	1	Need considerable improvements in road design and available road infrastructure, traffic management and other such reasons which contribute significantly to road safety.
Pollution levels	1	Need some improvement in emission standards, checking pollution etc.
Integrated Land Use Transport System	1	City structure is somewhat coherence with the public transport.

Anticipated Impact of Proposed Projects

Social Impact

Name of the Impact	Base Year (2016)	BAU Scenario (2036)	SUT Scenario (2036)
Walk Trips	15.8%	13.4%	14.3%
Private Transport (PVT) Trips	48.1%	61.6%	38.6%
Intermediate Public Transport (IPT) Trips	21.7%	14.6%	11.4%
Public Transport Trips	11.7%	8.6%	33.0%
Cycle Trips	2.7%	1.8%	2.7%
Avg. Network Speed (kmph)	32.9	25.1	32.1
Avg. Trip Length on Public Transport (km)	7.9	7.5	8.8
Walkability (Arterial & Sub-Arterial)	4%	4%	100%
Cyclability (Arterial & Sub-Arterial)	0%	0%	59%
Vehicle-km travelled (PVT) in Thousands	4463	9168	5354

Environmental Impact

Name of the Impact	Base Year (2016)	BAU Scenario (2036)	SUT Scenario (2036)
Local Emissions (Tonnes/day)	21.1	24.8	9.1
GHG Emissions (Tonnes/day)	451.8	668.4	324.4

Funding Options

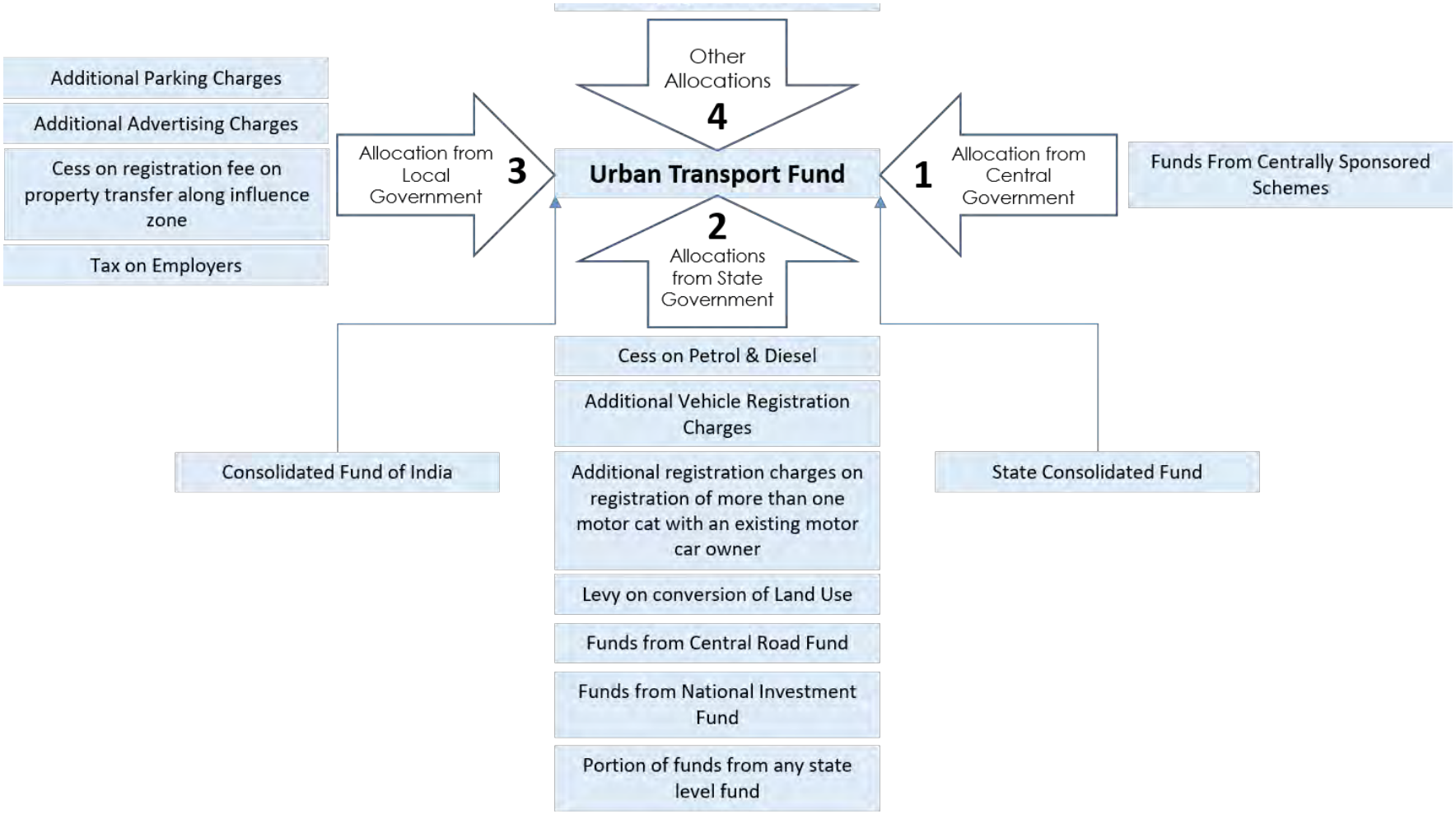
Proposals	Proposed Schemes	Probable Funding Sources
SPV – Central Railway, Transport Department		
Public Transport system	Rail based Transit System	Central/ State Govt. funds, AMRUT
SPV – NMC, MSRTC, Transport Department, Private Operators		
Public Transport system	PT Exclusive Lanes	Central/ State Govt. funds, AMRUT
	Articulated Bus/ CNG Bus / Hybrid Buses	Central/ State Govt. funds, AMRUT
SPV – NMC, MSRTC, Transport Department, Private Operators		
Public Transport system	Bus routes -fleet size improvement	Central/ State Govt. funds, AMRUT
Municipal Corporation, PWD, PWD-NH		
Pedestrian Facility Improvement	Footpath	Municipal funds, AMRUT, DUTF
	Pelican Signals	Municipal funds, AMRUT, DUTF
	FOB	Municipal funds, AMRUT, DUTF
NMT Facility Improvement	Semi Segregated Cycle Track	Municipal funds, AMRUT, DUTF
	Segregated Cycle Track	Municipal funds, AMRUT, DUTF
	Cycle Parking Stands	Municipal funds, AMRUT, DUTF
Municipal Corporation, PPP		
Parking Management Plan	On Street Parking	Municipal funds, PPP, AMRUT
	Off Street Parking	Municipal funds, PPP, AMRUT
	MLCP	Municipal funds, PPP, AMRUT
Transport Department, MSRTC, SSP Traffic Police		
Intelligent Transport systems	Semi Actuated Signals	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Pelican Signals	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Automated Vehicle Location System	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Variable Message Signs	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	ITS Control Centre	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Public Information System	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Common Mobility Card	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Mobile Phone Application	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	Surveillance Cameras	Municipal funds, DUTF, AMRUT, Smart City (SPV)
	GPS	Municipal funds, DUTF, AMRUT, Smart City (SPV)

Funding Options

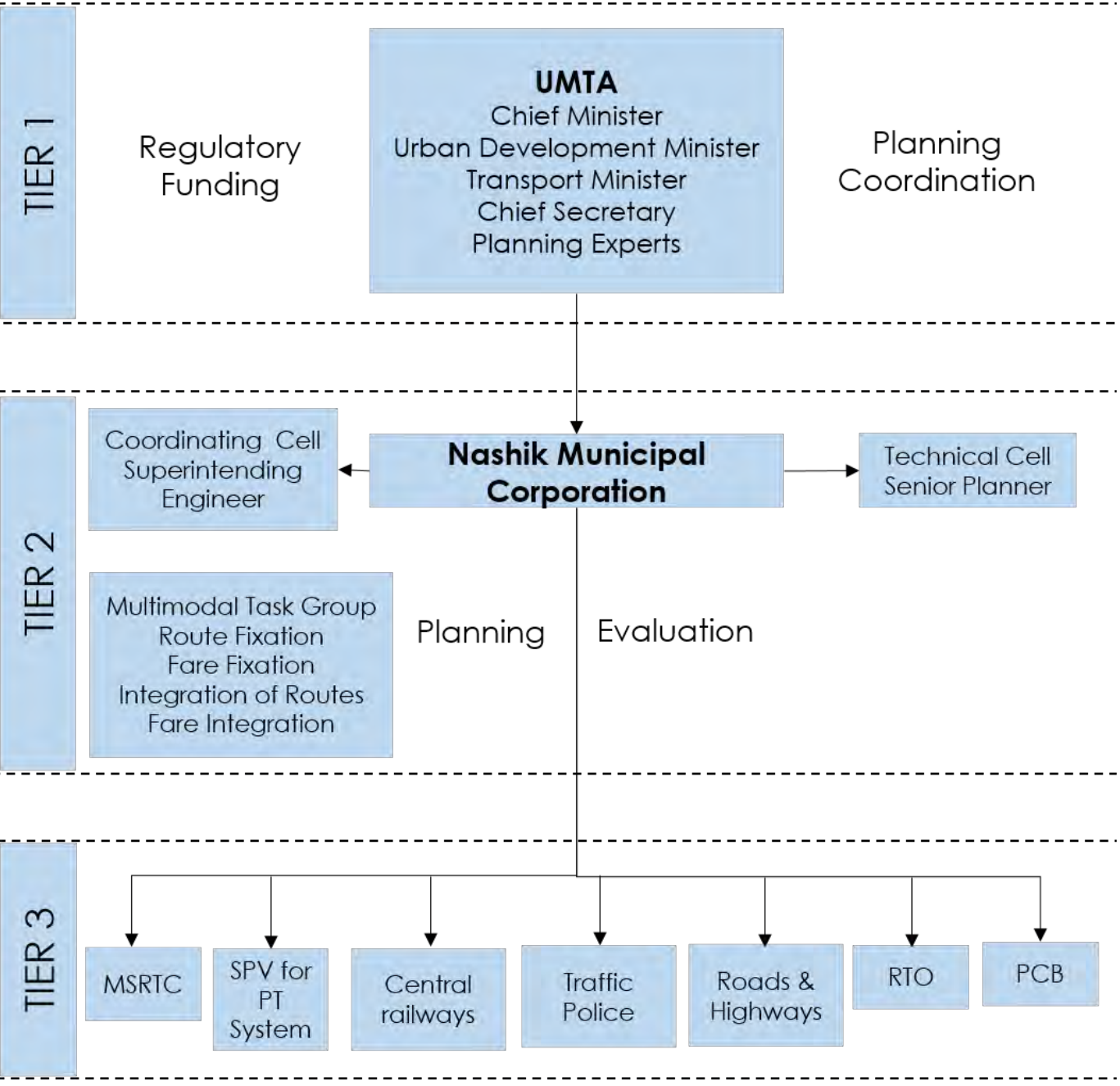
SPV – NMC, MSRTC, Transport Department, Private Operators		
Bus Transport	Inter-Modal facilities	PPP, Central/ State Govt. funds, AMRUT
	Bus Stops	PPP, Central/ State Govt. funds, AMRUT
Terminals	Proposed New Bus stand	PPP, Central/ State Govt. funds, AMRUT
NHAI, PWD-NH		
Road Network Improvement	Flyovers	Multi-lateral funding Agency, Central/State Govt. funds
	ROBs	Multi-lateral funding Agency, Central/State Govt. funds
PWD-NH		
Road Network Improvement	New Links	Multi-lateral funding Agency, Central/State Govt. funds
NHAI, PWD-NH		
Road Network Improvement	Road Widening	Multi-lateral funding Agency, Central/State Govt. funds
Transport Department, Traffic police, PWD/PWD-NH, LAD, Department of Health		
Road Safety policy and action plan	Accident recording, Black Spot identification	Road Safety Fund
	Roads according to road safety standards and safety features on roads	Road Safety Fund
	Upgradation of emergency care system	Road Safety Fund
	Safer vehicles and strict enforcement of road safety rules	Road Safety Fund
	Implementation of ITS and monitoring systems	Road Safety Fund

Funding Options

Sources of Funds for DUTF



Institutional Setup



3 TIER INSTITUTIONAL SETUP

Urban Mass Transit Company Limited

Urban Mass Transit Company Limited