

LOW CARBON MOBILITY PLAN FOR VISAKHAPATNAM

PUBLIC TRANSPORT Scenario

Supported by:

United Nations Environment Program (UNEP)

In Partnership with:

**IIT-Delhi, IIM-Ahmedabad, CEPT University-
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PT Components and Operators

♣ Intra-city

- Bus
 - City bus system -- APSRTC
 - BRT – VUTCL (APSRTC, GVMC, VUDA, Traffic Police, RTA)
- Auto-Rickshaw– Private Operators

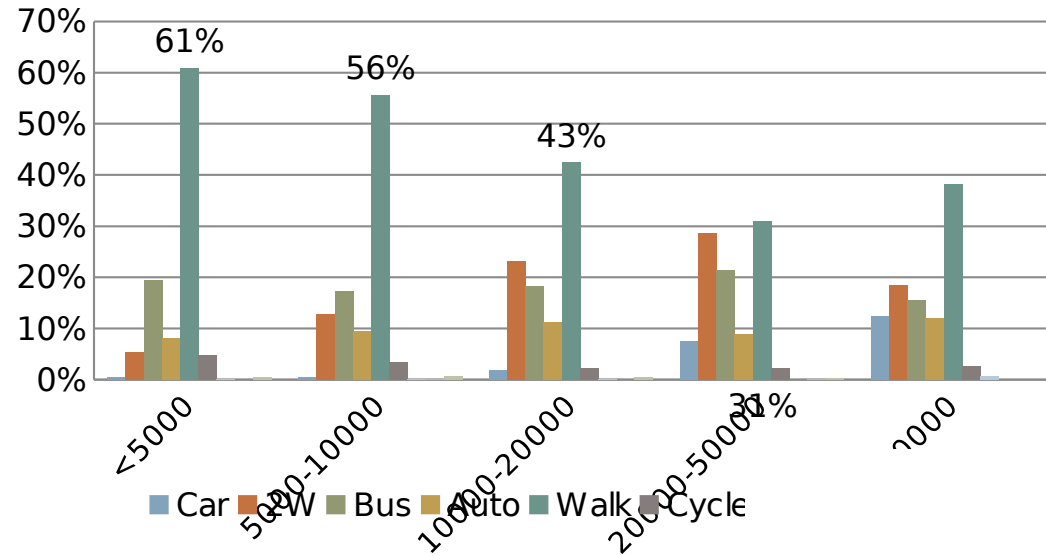
♣ Inter-City

- Rail– East Coast Railway
- Bus– APSTC, Private Operators
- Auto-Rickshaw– Private Operators

Base year Scenario

❖ Mode Shares-2011 ❖ Income Vs Mode Share

Mode	% Trips	Trip Length
Car	2%	9.3
2W	15%	5.8
Bus	18%	11.7
3W	9%	5.9
Walk	52%	0.7
Cycle	3%	3.2
Total	100%	4.1 km

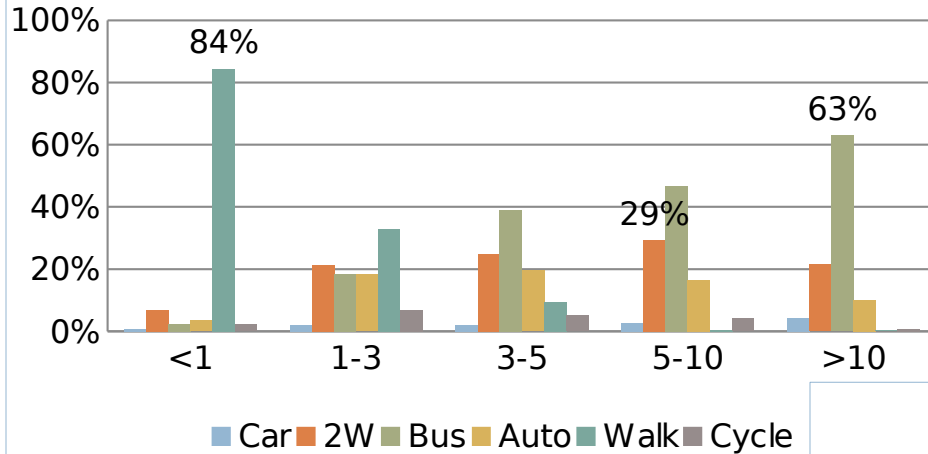


Source: HH Interviews, LCMP

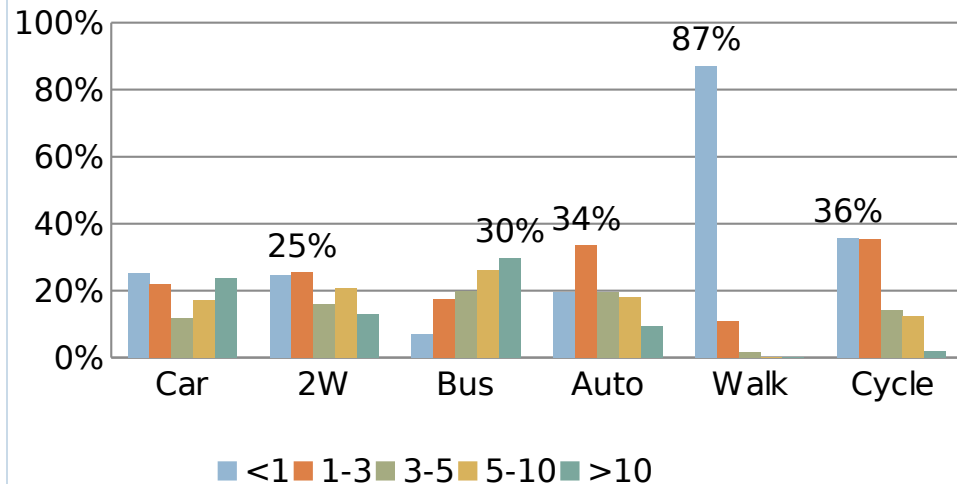
HH Income and Trip length are the two most critical variables in determining the mode choice

Mode-Trip length

Trip Length Vs Mode Choice



Mode Choice Vs Trip Length



City Bus System

- ❁ 157 routes in total
- ❁ 670 city buses
- ❁ 160 buses sanctioned under JNNURM
 - 2 Low floor AC buses
- ❁ More than 5 lakh trips/day
- ❁ Peak frequency of 15 min
- ❁ 63,000 Cars+ 4.7 lakh 2W carry the same trips but occupy 40% of road space and more than 90% of total transport budget made in the city
- ❁ 'Hire' Buses operated at Rs. 16-18 Rs. Per km
- ❁ Bus stop infrastructure missing

Checks on usage

❖ Bus operations

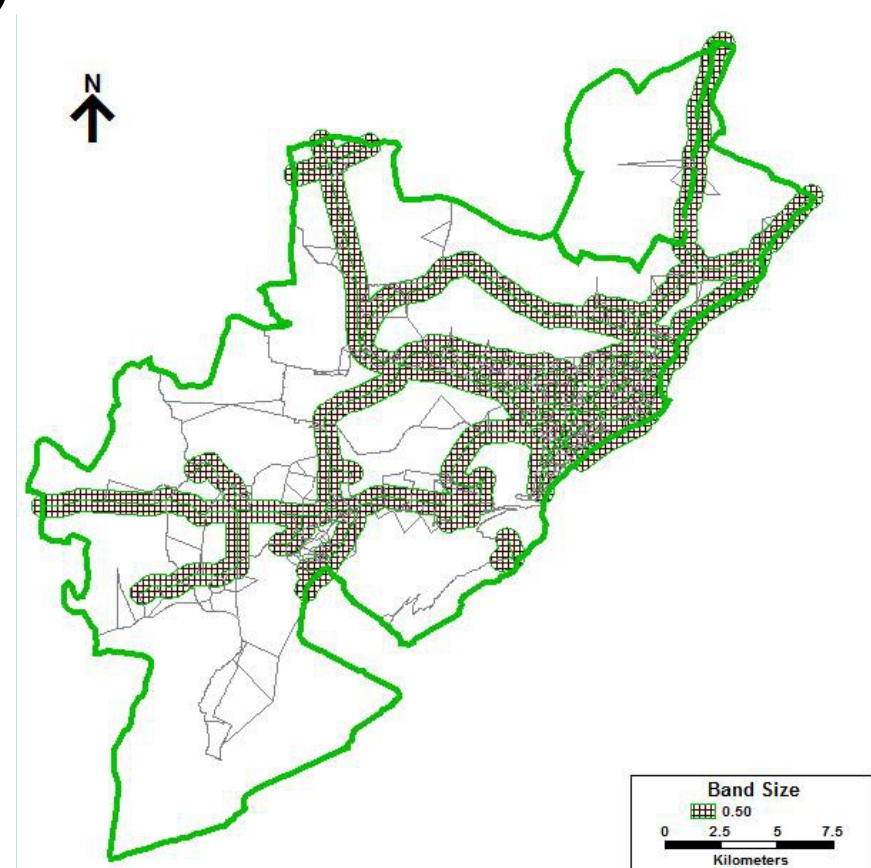
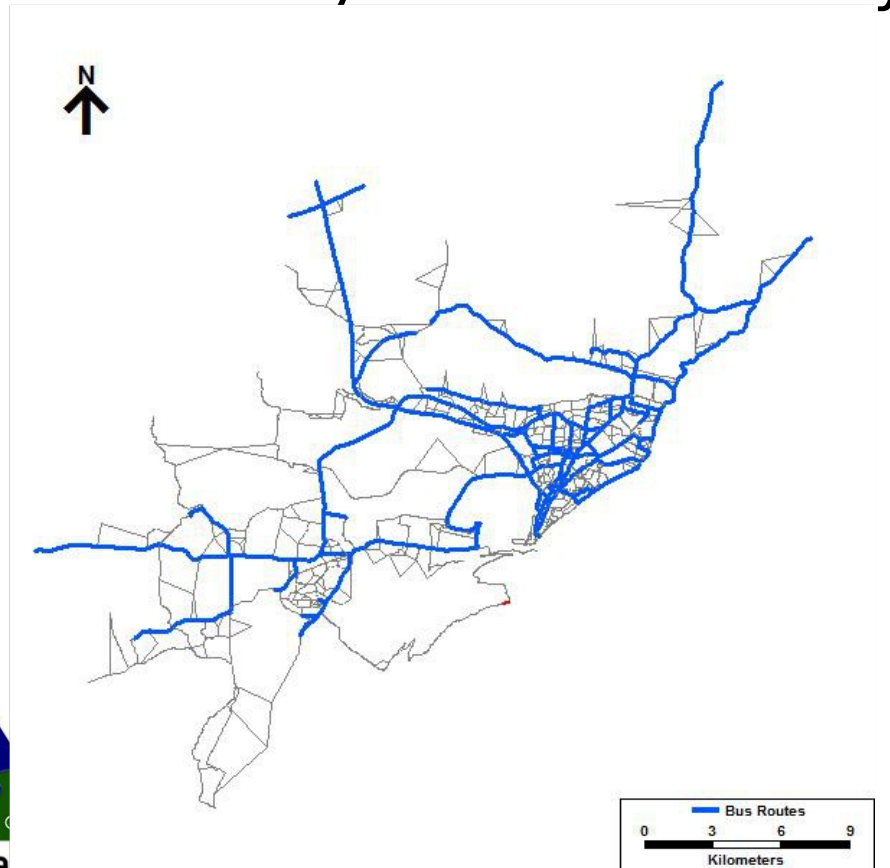
- APSRTC Occupancy and operations data (for total users, VKT)
- Petrol Pump Surveys (for annual VKT)

❖ Auto-Rickshaws

- IPT operator survey
- Petrol Pump Surveys (for annual VKT)

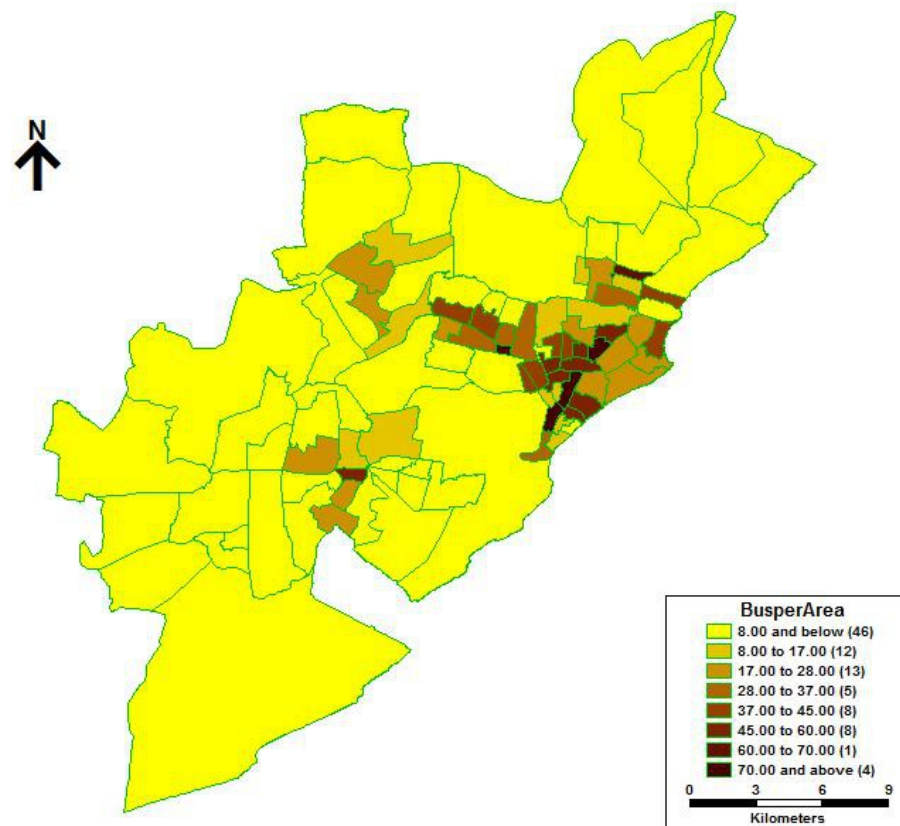
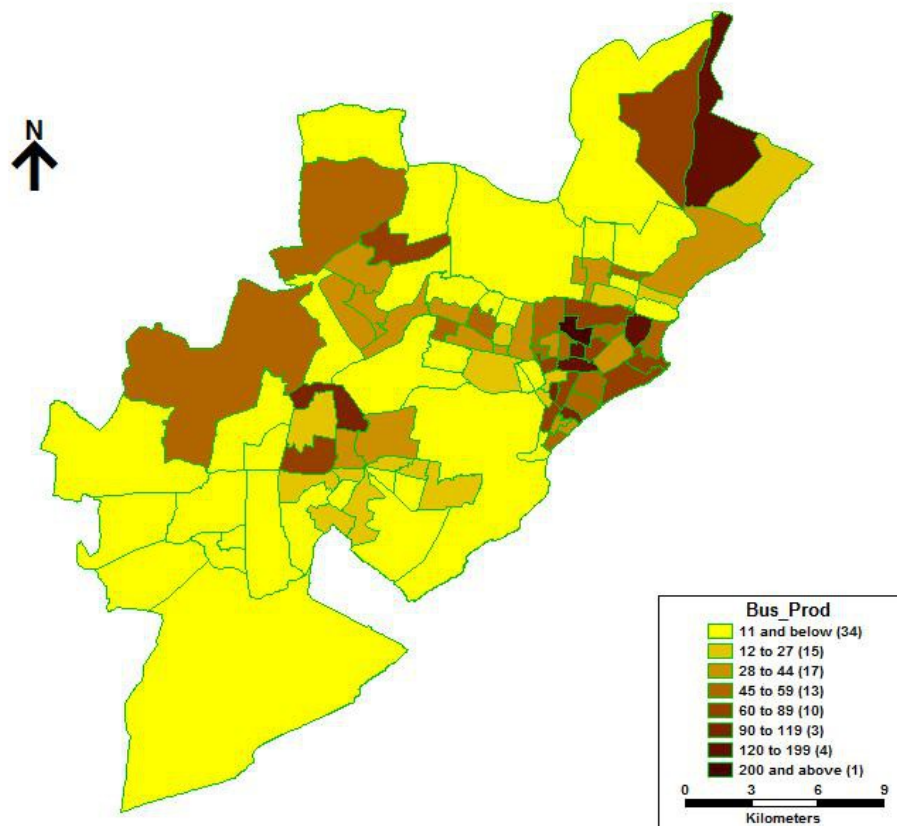
Bus

- ❖ Good network connectivity, But fleet and operations is a problem
- ❖ 670 city buses in the city cover more than 5 lakh



Bus- Demand Vs Supply

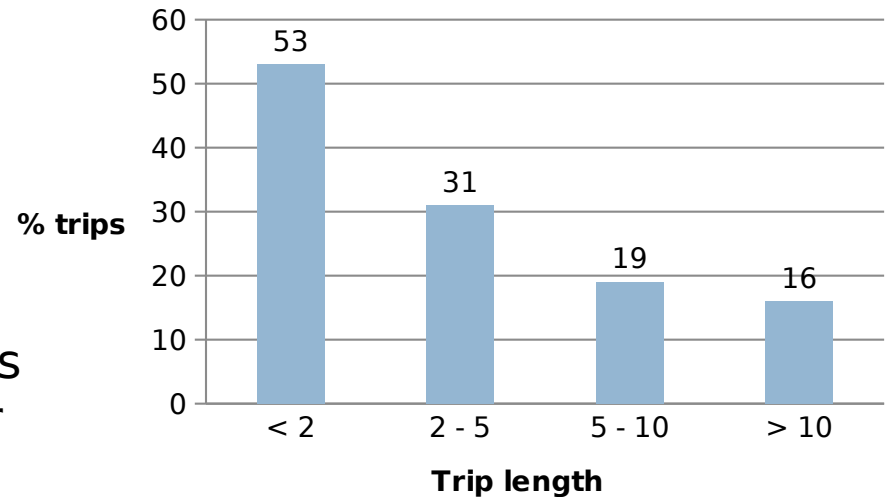
♣ Bus mode shares



Auto-Rickshaw

- ❖ Largely short trips
- ❖ Shared Auto and direct auto used in equal proportions
 - Shared auto routes dynamically adjusted based on passenger demand
- ❖ Safer compared to others
 - 0.03 Fatalities per lakh users compared to 0.5 fat/lakh for all modes
- ❖ 50% of their trips cant be replaced by buses
- ❖ If trips shift to private modes it'll add 5000 cars and 1.6 lakh 2W

Auto Trip Distance Distribution



PT Scenario



Mode Shift from BAU

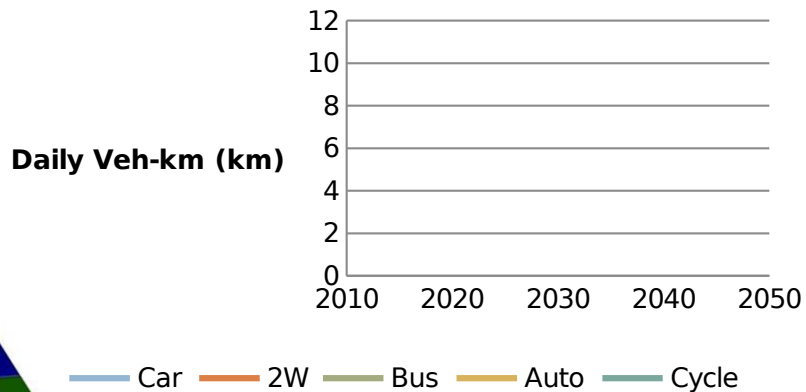
- ✿ PT shift add on to land use scenarios derived from BAU
- ✿ Trip length distribution induced mode shift
- ✿ Shift to Bus
 - 25% 2W between 3 to 5
 - 25% Cars between 5 to 10km
 - 50% Cars >10km
- ✿ Shift to Auto
 - 25% 2W between 1 to 3km
 - 25% 2W between 3 to 5
 - 25% 2W between 5 to 10 km

Mode	Base Year	BAU 2031	PT 2031
	% Trips	% Trips	% Trips
Car	2%	8%	3%
2W	15%	25%	12%
Bus	18%	10%	29%
3W	9%	19%	13%
Walk	52%	36%	38%
Cycle	3%	2%	4%
Total	100%	100%	100%

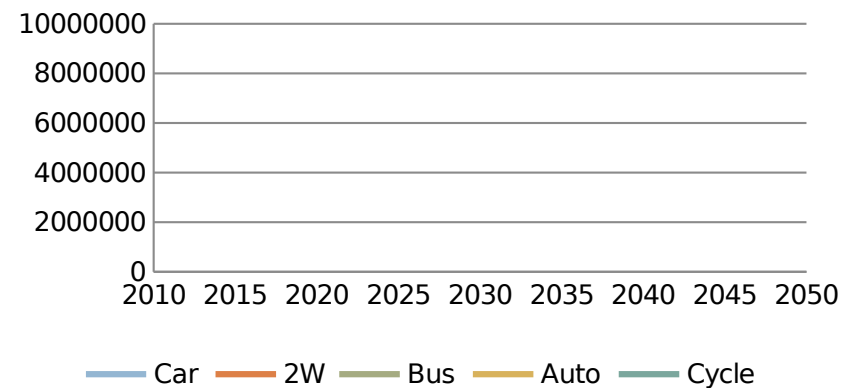
BAU- NMT comparision

Scenario	Population	No. of trips	Vehicles on road	Per Capita CO2 (mill. tons)
Base	17,30,320	27,85,815	3,68,751	5.3
BAU	29,46,000	48,31,440	11,63,292	7.0
LU	29,46,000	48,31,440	9,71,946	6.4
PT	29,46,000	48,31,440	6,16,214	6.1

BAU -Mode wise Veh Km

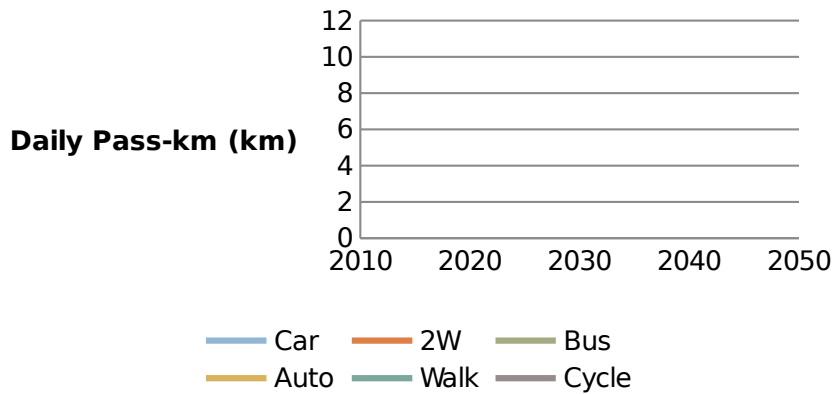


PT Mode wise Veh-km

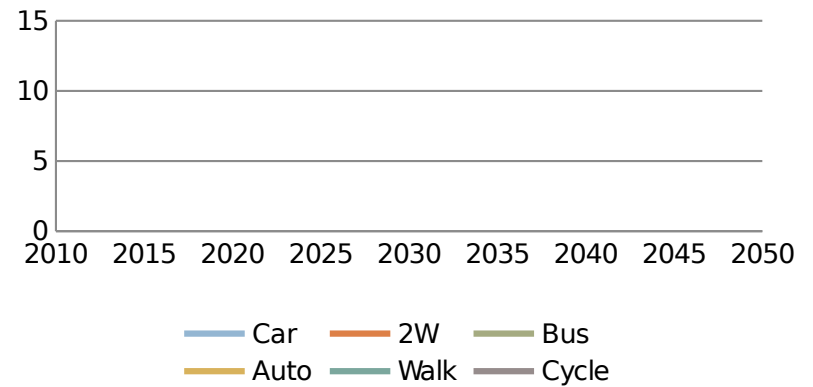


BAU- NMT comparision

BAU Scenario-Daily Passenger-km



PT Scenario Daily pass km

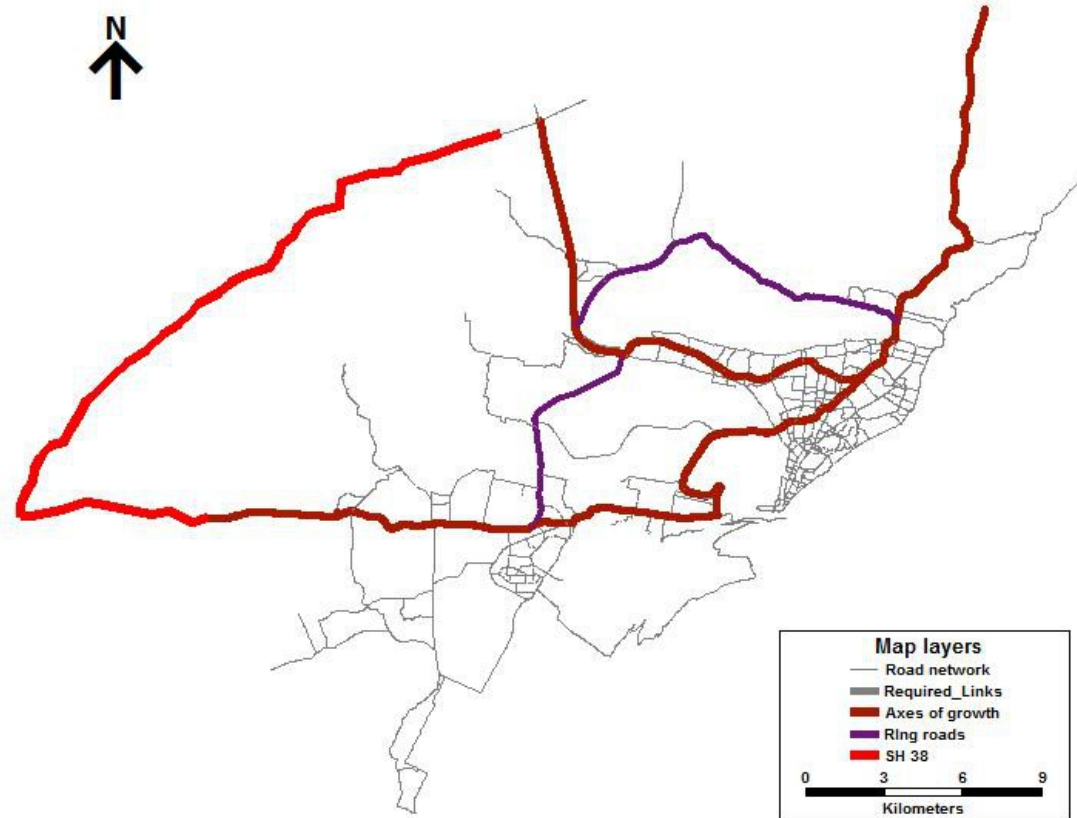


recommendations



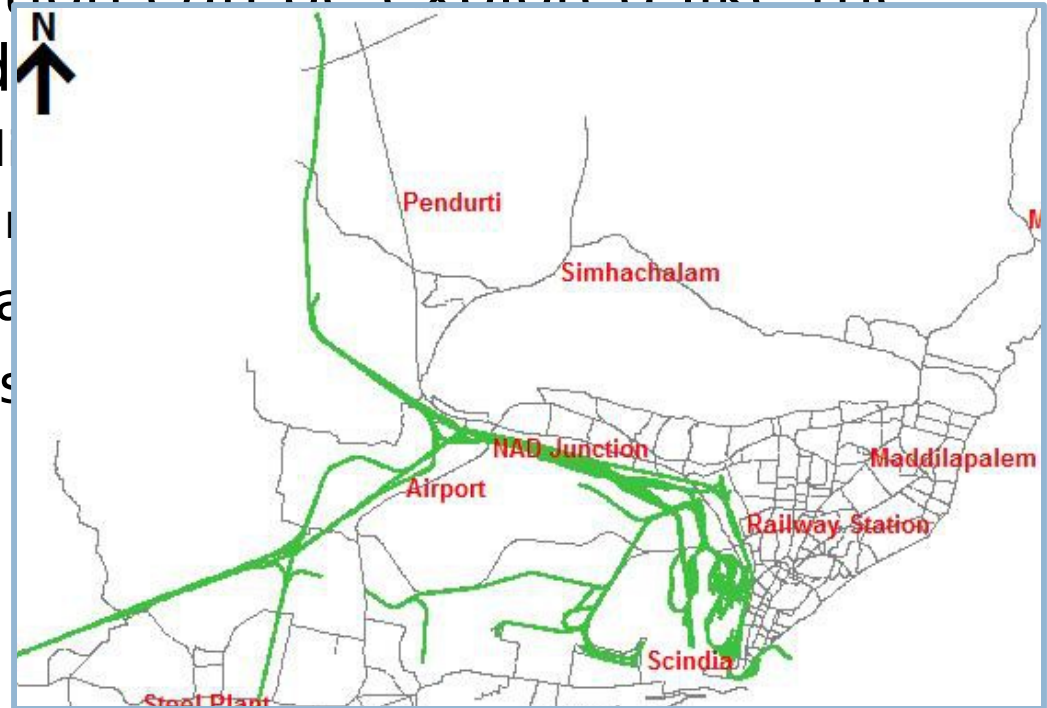
Regional connectivity by road

- ❖ Anakapalli, Vizianagarm to act as satellite cities to Vizag
- ❖ 3 axes of growth proposed along NH-5 towards Madhurawada, Scindia road and Pendurti road
- ❖ BRT+NH-5 between NAD to Gajuwaka to act as a ring to city
- ❖ NH-5 to be converted into urban road and Highway bypass via SH-38 to act as outer ring road



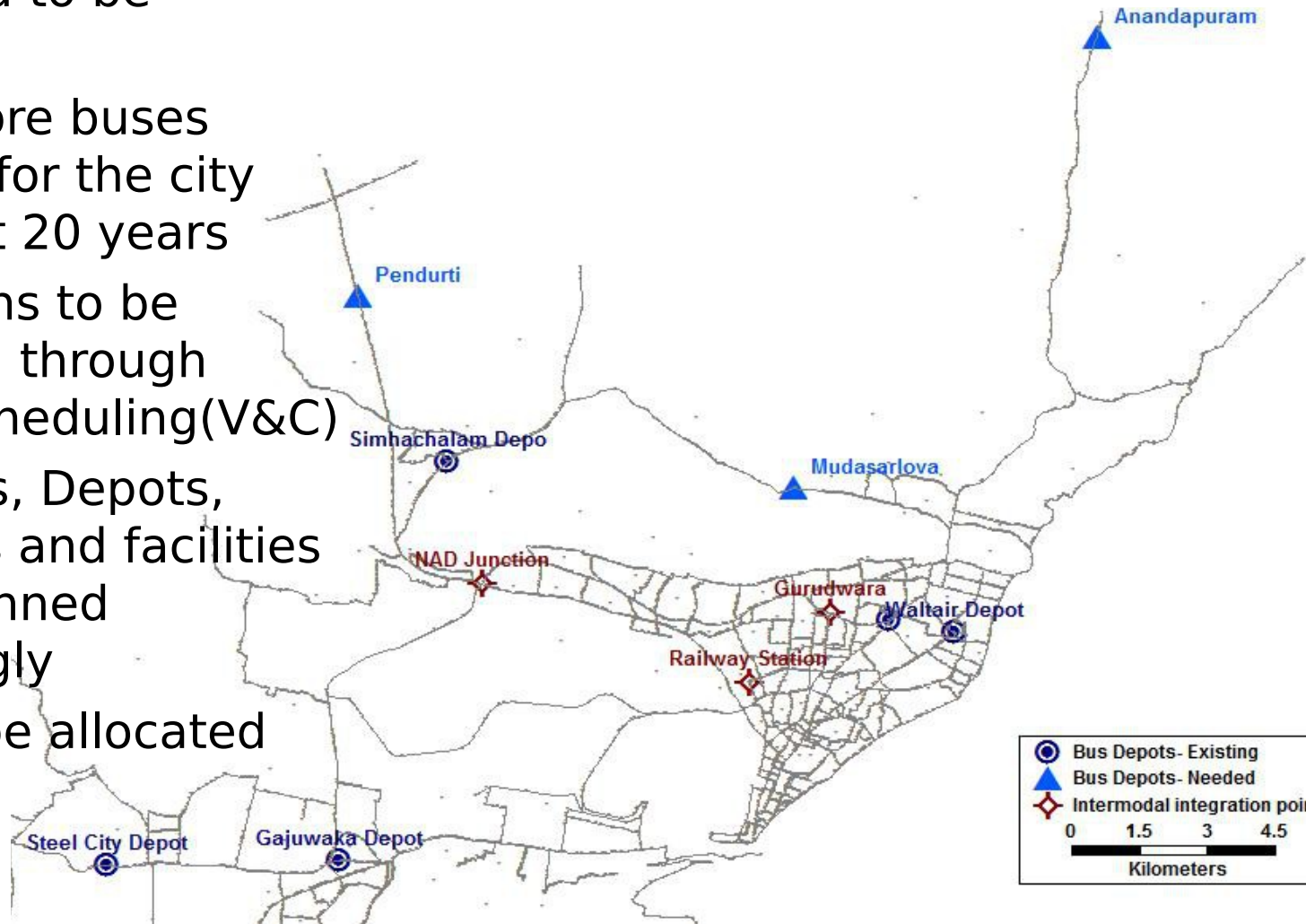
Regional connectivity by Rail

- ✿ Rail network currently present in two of the three growth areas
- ✿ Sub-urban rail option can be explored like the MMTS-Hyderabad
 - Vizag to Anakapalli
 - Vizag to Vizianagaram
- ✿ Intermodal terminal at railway station for bus, auto and parking



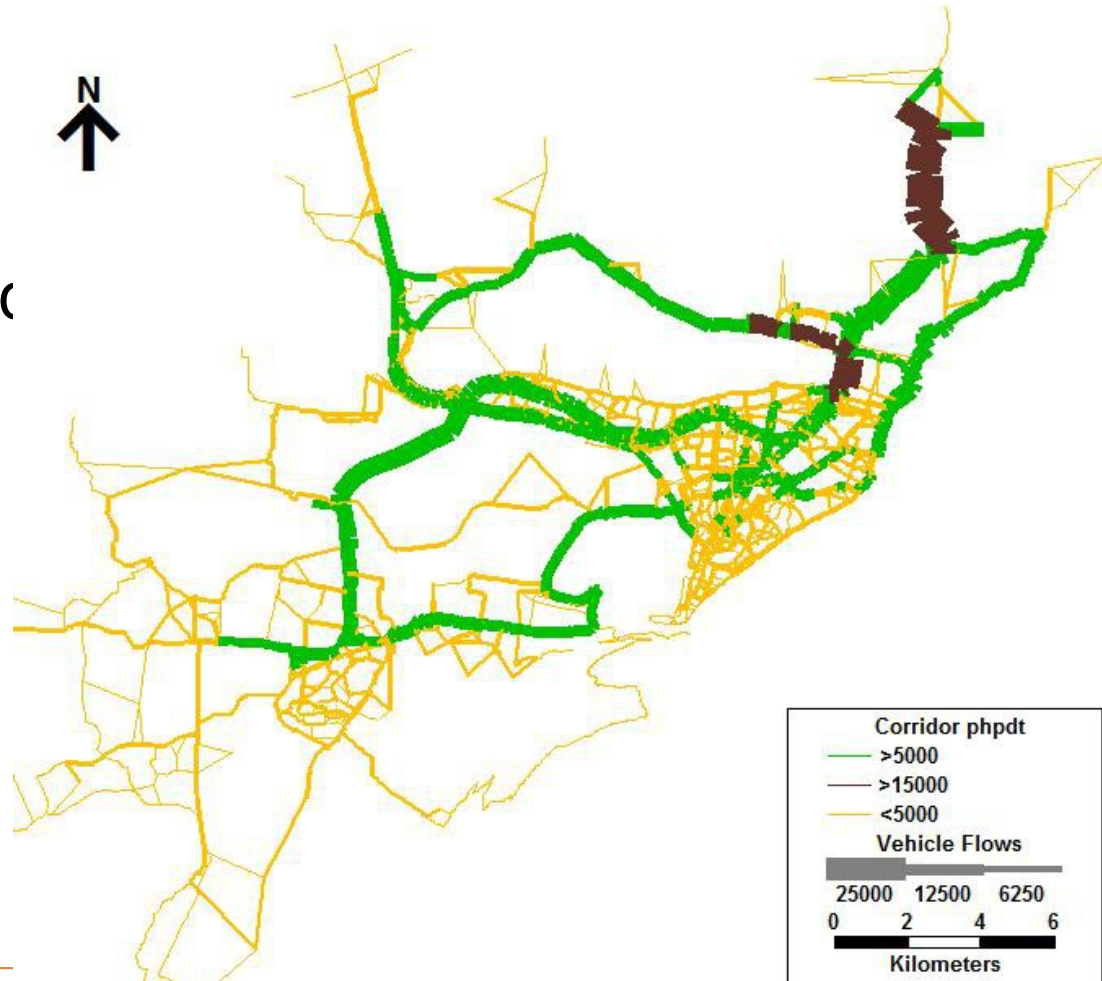
City Buses

- ❖ Buses needed to be upgraded
 - 1,800 more buses required for the city over next 20 years
 - Operations to be improved through better scheduling(V&C)
 - Bus stops, Depots, terminals and facilities to be planned accordingly
 - Land to be allocated by VUDA



PT Scenario Demand

- ✿ 2 stretches >15000 phpdt
 - 3.5km
 - 4.5km
- ✿ 112km $>5,000$ phpdt

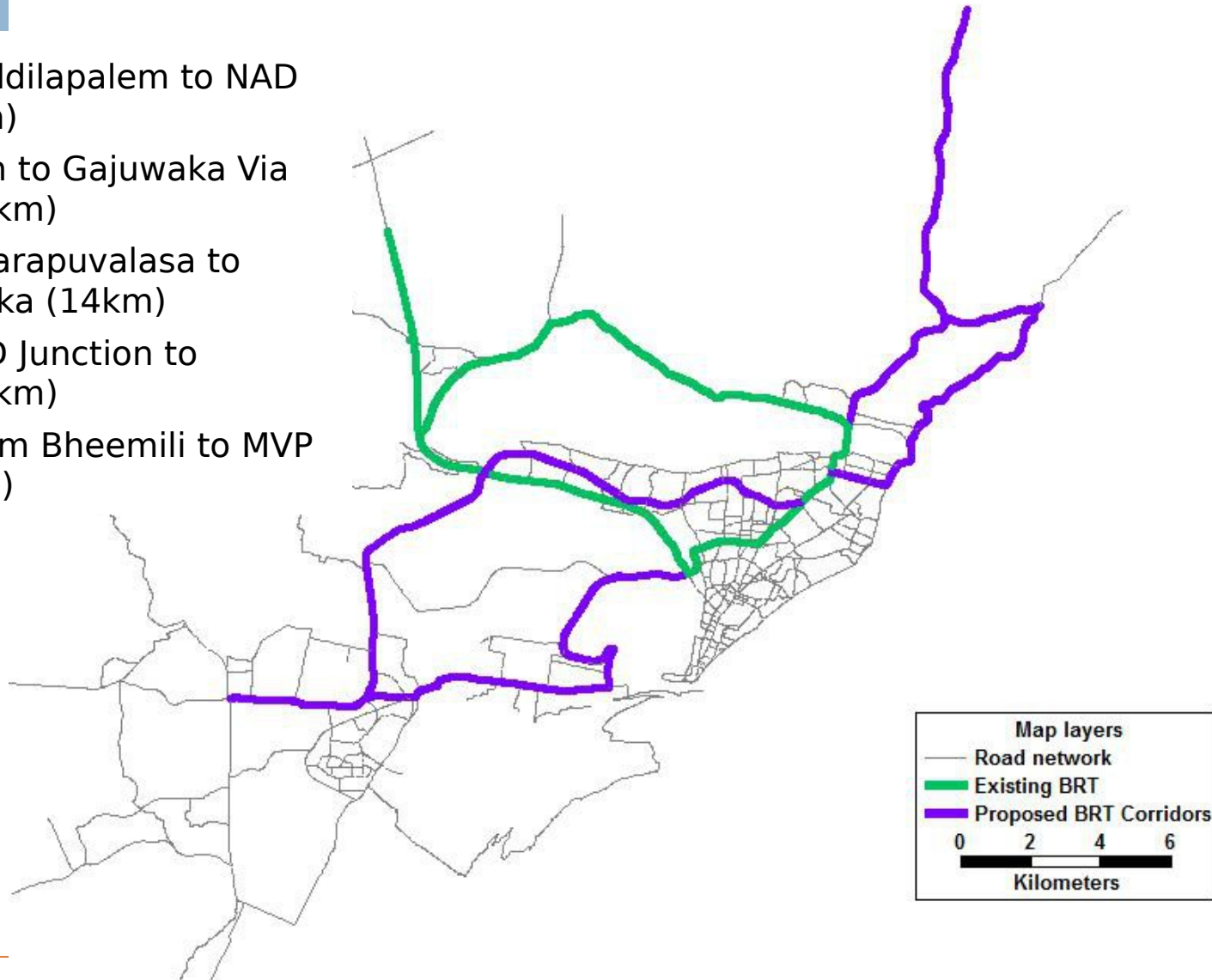


Metro?

Mode choices	FHPDT in 2011	Population as per 2011 census (Million)	Average Trip length for motorized trips in km
Metro Rail	≥ 15000 for at least 5km continuous length	≥ 2	$> 7-8$
LRT primarily at grade	$\leq 10,000$	> 1	$> 7-8$
Monorail	$\leq 10,000$	> 2	About 5-6
Bus Rapid Transit System	$\geq 4,000$ and Upto 20,000	> 1	> 5
Organised City Bus Service		> 1 lac hilly towns (50,000)	> 2 to 3

BRT corridors-65 km

- ❖ NH-5 from Maddilapalem to NAD Junction (10km)
- ❖ Railway station to Gajuwaka Via Scindia (14.73km)
- ❖ NH-5 from Tagarapuvalasa to Hanumantawaka (14km)
- ❖ NH-5 from NAD Junction to Gajuwaka (8.5km)
- ❖ Beach road from Bheemili to MVP colony (8.5 km)



Auto-rickshaws

- ❖ Appropriate parking/stands at all locations
 - Commercial Areas
 - Public Spaces
 - Residential colonies
- ❖ Limit to be raised on the total no. of autos in the city
 - 30,000 Autos registered
 - 8,000 is the limit for VMC-RTA. Not updated for GVMC
- ❖ Stopping and boarding facilities in sync with bus-stops
- ❖ Shared autos to be used as both primary PT and feeder service to city buses based on corridor demand



Thank You