

To Provide NON-MOTORIZED TRANSPORTATION (NMT) Proposal in Vadodara City

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Abstract –

Non-Motorized Transportation (NMT) includes all forms of travel that do not rely on an engine or motor for movement. This includes walking and bicycle and using small-wheeled transport (skates, skateboards, push scooters, and hand carts) and wheelchairs.

Non-motorized is vital for sustainable living. The characteristics of sustainable transport are safe, comfortable, and efficient in terms of economic and energy consumption and minimizing environmental pollution. Today, transportation systems in most cities are no longer sustainable due to the two lack of natural materials such as oil reserves, increasing the number of deaths and injuries by motor vehicle accidents and traffic congestion. The carbon emissions into the atmosphere contribute to environmental pollution in terms of quality facts and the mobility of life in general. aimed is to design sustainable transport for a city that promises a better world for future generations. It provides strategies to change the choice of transform modes from road users of motor vehicles to non-motorized es through land use and transportation planning. By path and cycling zone to increase non-motorized motor vehicles travel. The use of non-motorized transportation such as cycling and walking is not only to reduce carbon but also healthy lifestyle and physical activity.

Key Words: Nmt, Vehicle, Carbon, Transportation

1. Introduction -

Transportation is crucial for providing quality to the folks, and for the movement of products. Transportation facilitates a broad spectrum of opportunities for a person for desired activities. although transport isn't associated with finish in itself, it's the means to several ends. economical transportation leads to economic, social, and political benefits. The economic benefits ate re; the distended marketplace for goods; stabilization of costs in numerous markets; and economy other rebirthed e concentration of activities in definite localities and ulterior distribution. The social edges include opportunities for travel for intellectual pursuits and pleasure; access to medical facilities; and a selection of locations for home and work. The political the motion of national associate iteration uniform extension of presidency services to varied communities and strengthening the country's protection and security. Transportation demands area unit desire desired of the folks and they're their minds area unit to earn a living,

conduct a privately held corporation, and interact in social and recreational activities. For this an honest provision of a transportation network is critical. the availability of transportation is within the variety of pass by completely different modes, such car two-wheelers towers two-wheelers 2 wheelers, cycle rickshaws, bicycles, and different vehicles. Typically, the presented future demand is equipped with new physical infrastructure. New infrastructure fin flyover sews and flyover in expectation of this demand would inevitably attract, eventually, and so offer a justification for following spherical of physical growth. Moreover, the new physical infrastructure would force immense capital to invest socially. Social, money, and environmental pressures on pepo ensuing effects. In most cities, plans to create new roadways have buckled not for need of cash however thanks to national opposition to the adverse effects of roads constructions. Town the town core is the center of all major activities reflective of the culture of a metropolitan city in the most comprehensive manner having a practical significance. within the previous cities, the house dedicated to transportation has remained a lot or less identical over the years whereas the demand for such house has undergone an incredible upswing. The previous urban centers have such physical characteristics, that don't permit new ovations and functions to come back in. one among the first tasks of the look fraternity is to seem into the ointment of the present transportation infrastructure offered and build its potential use particularly, for the previous urban areas.

2. Literature Review -

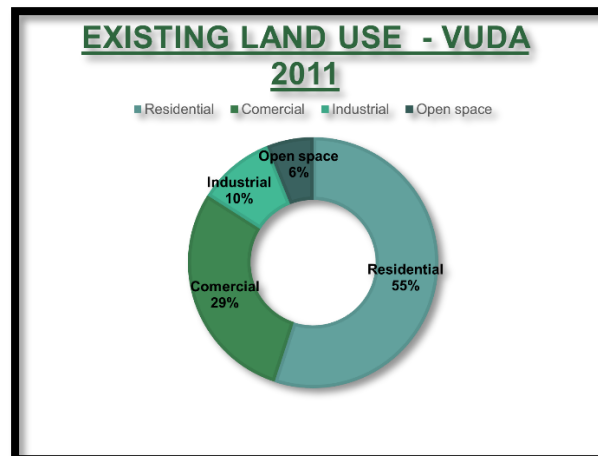
In India, pointers and toolkits for urban transport development were ready with technical assistance on the Urban Transport Strategy, that was funded by the Asian Development Bank for the Ministry of Urban Development (MoUD), Government of Republic of India. throughout this toolkit, pointers were designed to help decision-makers and practitioners in states and municipal governments unit unit of measurement attached urban transport development in medium-sized cities in Republic of India. These pointers highlight the ruffled tasks needed for the planning of non-motorized transport (NMT) come at intervals within the context of Associate in Nursing's comprehensive transport strategy. as a results of the necessities of every quite road usurers unit of measurement varied, they've treated severally at intervals these pointers. European or Australian mixed facilities no unit of measurement inappropriate for several Indian cities, wherever the large choice and blend of NMVs might overwhelm dedicated pedestrian facilities. According to these pointers NMT is additionally written as any mode of transportation that's not exploiting any. Non-motorized modes embrace walking, bicycle and velocipede. These modes

don't seem to be captivated to fossil fuels and have nominal emissions. Thereby, they're extraordinarily low carbon modes. These modes unit of measurement employed by low-income households to access employment, education, and whole totally different essential services. the employment of NMT has health edges, however, with the rise in incomes and poor infrastructure, the utilization of NMT has been declining. typically, its user's captives, as they'll not afford whole totally different modes of transport. These users unit of measurement obsessive about walking and athletics, even for traveling longer distances (Mohan and Tiwari 2000). within the 19 Eighties use of non-motorized modes of transport in Indian cities was associated with gain levels. the employment of NMT later declined with the increase in gain levels (Repoll, 1992). This has resulted in decreasing use of NMT, with the increasing gain levels throughout the years. however, NMT dominates the modal share of Indian cities. this might somewhat be attributed to the dense mixed land-use patterns in Indian cities, resulting in shorter trip lengths then the convenience of NMT thanks to the alone accessible mode of transport for low-income households. to grasp the property goals of the transport sector, it's a necessity to push the utilization of NMT. Encourage potential commuters to use the NMT.

Source: "Promoting Low Carbon Transport in India", by Geetam Tiwari, Deepty Jain

3. Data Collection –

Data -1



Data -2

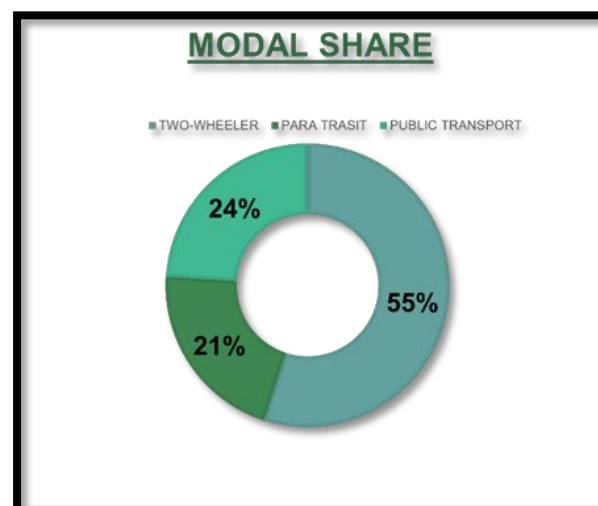


Table -1: CO2 Mitigation wedges from transport

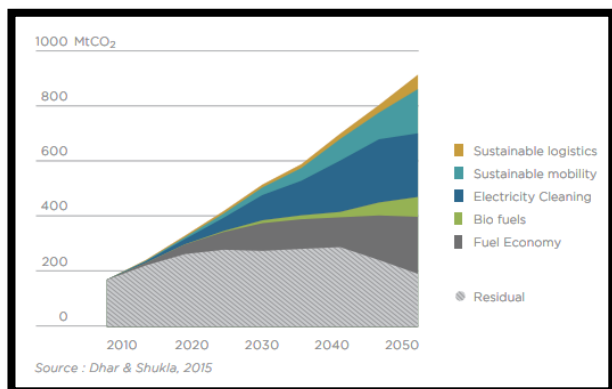


Fig -1: Figure

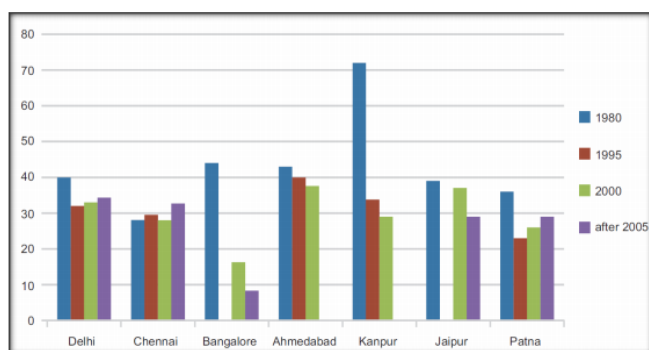
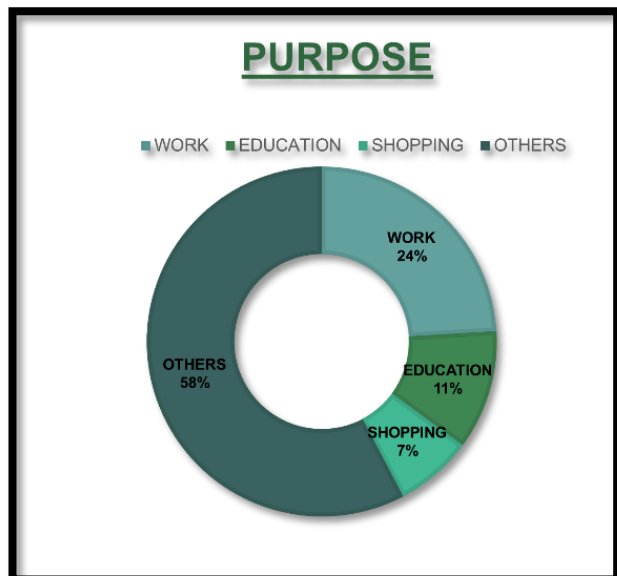
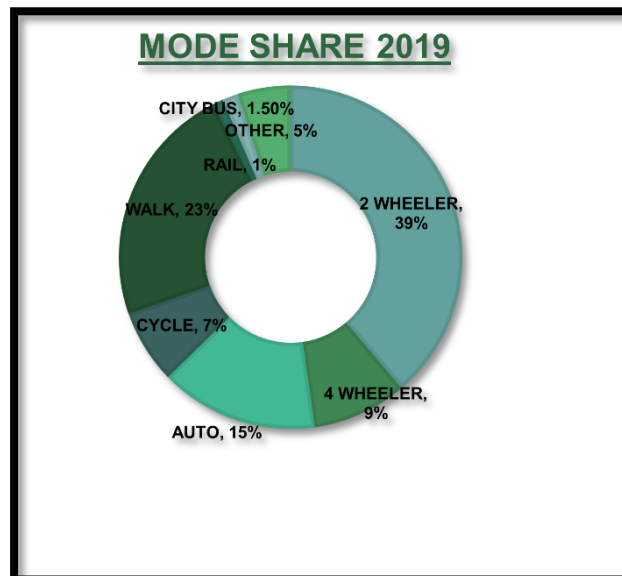


Figure - Trend observed in modal share of walking trips since the 1980s

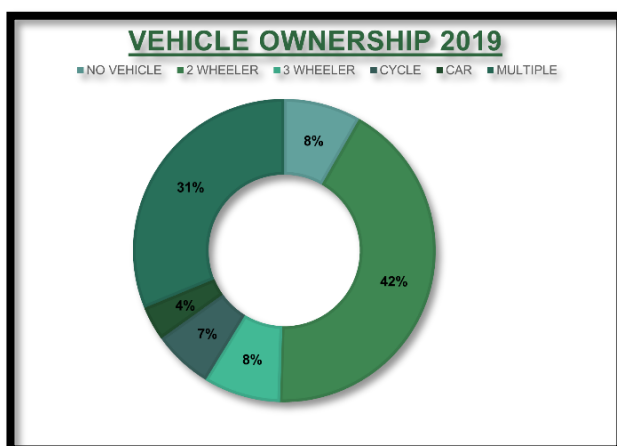
Data -3



Data -6



Data -4

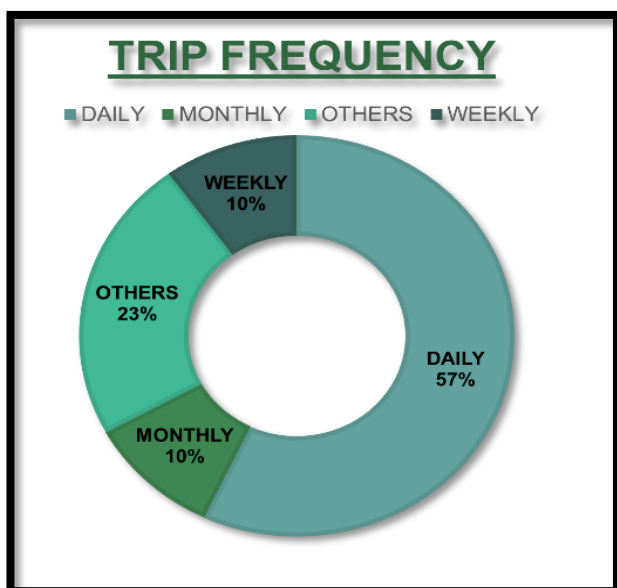


MODAL SPLIT FOR VADODARA

Mode	Percent Modal Share			
	TRL 1985	CIRT 1996	RITES 2006	PRAJAPATI 2013
WALK	40.1	36.81	20.65	11.4
BICYCLE	15.1	17.41	18.65	10
AUTORICKS HAW	5.8	7.15	13.72	13.5
TWO-WHEELER	11.6	23.62	36.45	46.7
BUS	25.8	8.68	5.61	11.8
CAR/OTHER	NA	6.33	4.93	6.6

YEAR	POPULATION	GROWTH RATE	GROWN
2021	2232521	0.0194	42548
2020	2189973	0.019	40843
2019	2149130	0.0187	39526

Data -5



		MALE	FEMALE
Literates	1,364,157	732,121	632,036
Sex Ratio (Per 1000)	921	934	919

Source – TRAFFIC DATA (VUDA 2011)

TOTAL NO. OF COMMUTERS INTERVIEWED

SR. NO.	STATIONS	TOTAL SURVEY	% OF TOTAL
1	PANCHVATI	122	6.94
2	GENDA CIRCLE	106	6.03
3	RACE COURSE	154	8.76
4	SUBHANPURA	137	7.79
5	O.P. ROAD	163	9.27
6	AKSHAR CHOK	114	6.48
7	VASNA ROAD	172	9.78
8	TANDALJA ROAD	155	8.82
9	SAKTI NAGAR	124	7.05
10	KALALI FATAK	73	4.15
11	VADSAR FATAK	149	8.48
12	MAKARPURA CIRCLC	139	7.91
13	HARI NAGAR	150	8.53
	TOTAL	1758	100.00

2019 VEHICLE TYPE REGISTERED IN RTO-VADODARA	TOTAL VEHICLE
AUTO	5,151
TWO WHEELER	88,772
FOUR WHEELER	26,196
HEAVY VEHICLE	6,352
TOTAL VEHICLE	1,26,471

Source – RTO Vadodara

Here we can see Motor vehicles registrations in Vadodara witnessed a steep decline of 97.20 % in the year 2019. The stats show that against a total of 12,294,52 vehicles registered in 2018, almost 1,26,471 vehicles were registered in 2019. Of this, 26,196 four-wheelers and 88,772 two-wheelers were added to the roads of Vadodara 2019.

Central Control Room for Air Quality Management

Date: Sunday, May30,2021

Time: 07:03:54 AM

Station: Vadodara

State: Gujarat

City: Vadodara

Parameter: PM2.5, PM10, NO2, SO2, CO

Parameters	Date	Time	Concentration	Units	Concentration(24hr)
PM2.5	29-05-2021	23:45	20.0	ug/m3	21.44
PM10	29-05-2021	23:45	33.0	ug/m3	30.24
NO2	29-05-2021	23:45	7.0	ug/m3	7.26
SO2	29-05-2021	23:45	5.0	ug/m3	5.6
CO	29-05-2021	23:45	0.0	mg/m3	0.98

Routes - existing transit

- 90 CNG Buses (63 Mini Buses & 27 Regular Buses)
 - 40 Bus Routes
 - 124 Bus Stops
- = 85,000 to 1 Lakhs Passengers Daily.

Road Network Pattern

Radial Network (Compact & Short Trip Length)

- I Ring
- 7 Ring

Road Selection for Footpath & Cycle Lane

- G.E.B. ROAD
- FATEHGANJ

VEHICULAR OWNERSHIP PER 1000 POPULATION

VEHICLE	2012	2019
CYCLES	222	94
2 WHEELER	282	292
4 WHEELER	23	56

Source – RTO Vadodara

YEAR	TOTAL VEHICLE REGISTERED IN RTO - VADODARA
2007	9,48,091
2017	20,27,697
2018	12,294,52
2019	1,26,471
2020	NO DATA(LOCKDOWN)

Source – RTO Vadodara

2018 VEHICLE TYPE REGISTERED IN RTO-VADODARA	TOTAL VEHICLE
AUTO	60,815
TWO WHEELER	9,76,797
FOUR WHEELER	1,75,664
HEAVY VEHICLE	16,174
TOTAL VEHICLE	12,29,452

Source – RTO Vadodara

- KARELIBAUG
- AJWA ROAD
- WAGHODIA ROAD
- DABHOI ROAD
- SUSAN CIRCLE

TOTAL = 7 ROADS /15.33 KM LENGTH WITH FOOTPATH & CYCLELANE WE CAN CONNECT SOME MAJOR IMPORTANT PLACES IN VADODARA LIKE: -

- RAILWAY STATION
- LAXMI VILAS PALACE,
- M. S. UNIVERSITY
- GIDC
- RATRI BAZAR
- AKOTA
- BSNL JUNCTION ETC.

40M ROAD - FATEHGANJ, KARELIBAGH, AJWA,

WAGHODIA ROAD

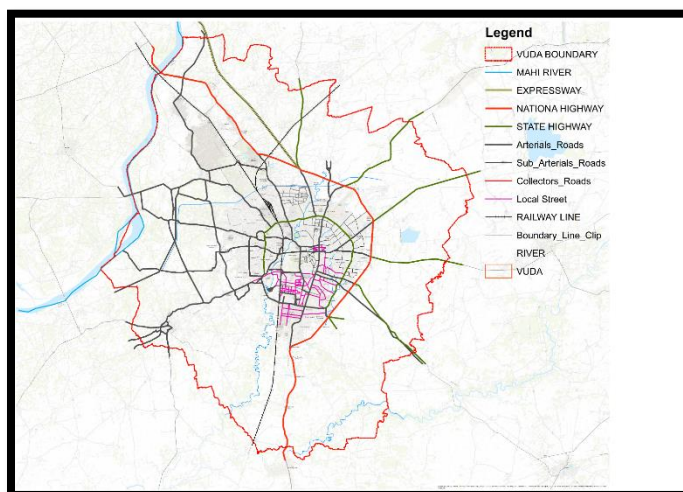
36M ROAD - DABHOI ROAD, SUSAN CIRCLE

30M ROAD - G.E.B.

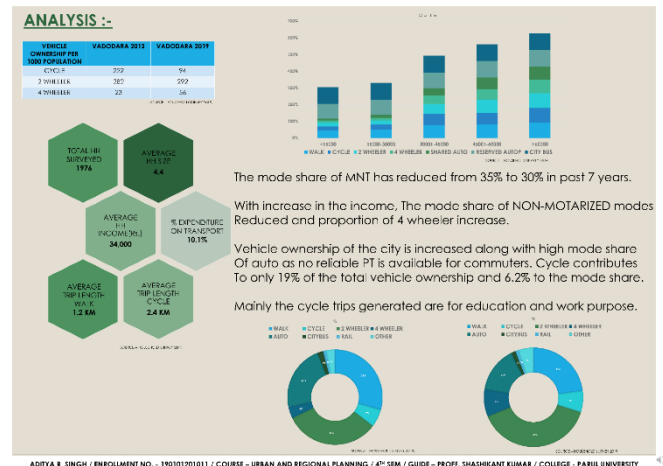
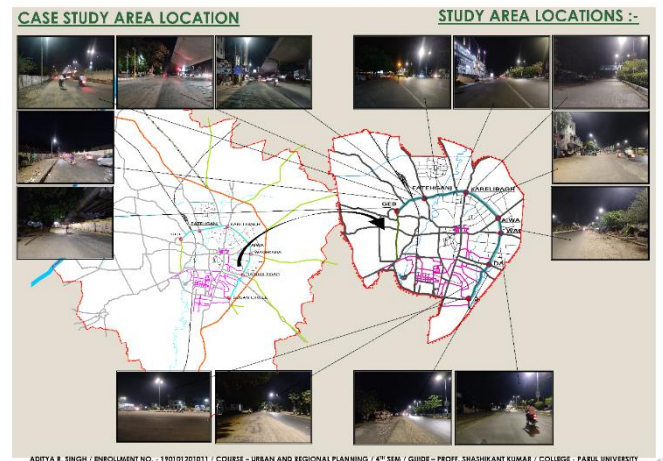
Accidents in 2019	
Serious	124
Fatal	116
TOTAL	240

Source -TRAFFIC BRANCJH KARELIBAGH, VADODARA

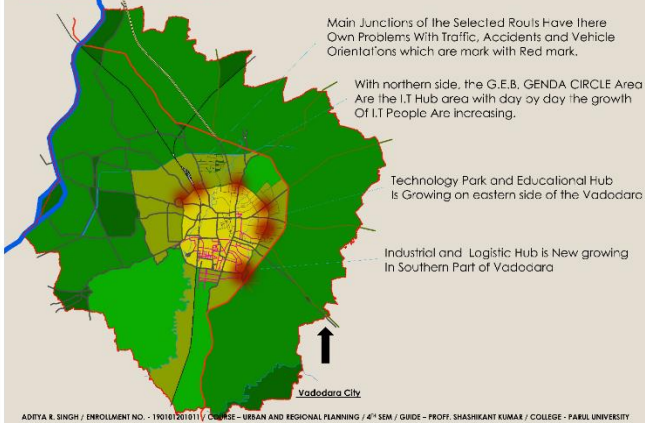
4. EXISTING ROAD NETWORK MAP



5. AREA IDENTIFICATION

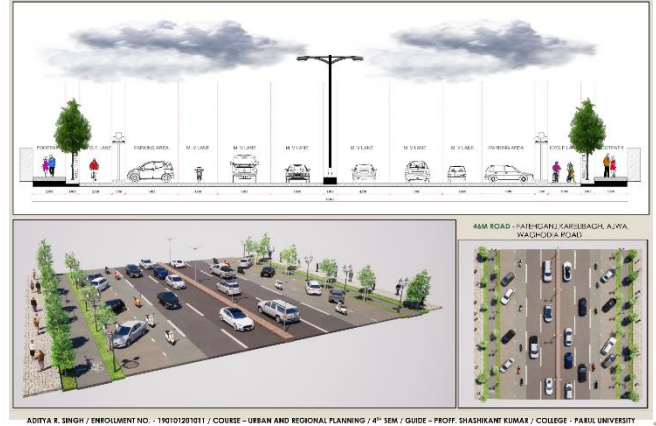


EXISTING ROAD NETWORK :-

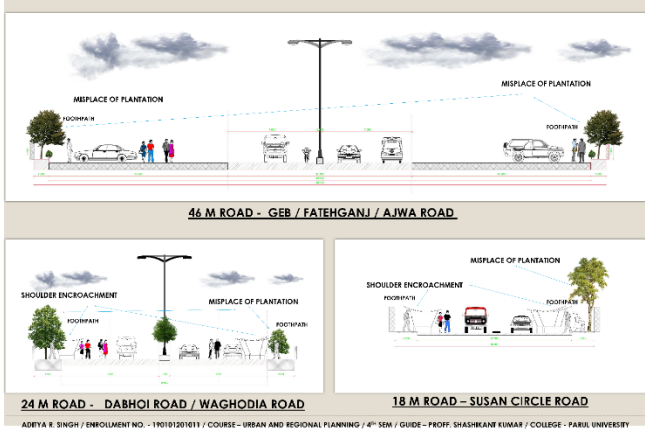


PROPOSAL :-

MAJOR ROAD LANE PROPOSAL (SECTION) :-

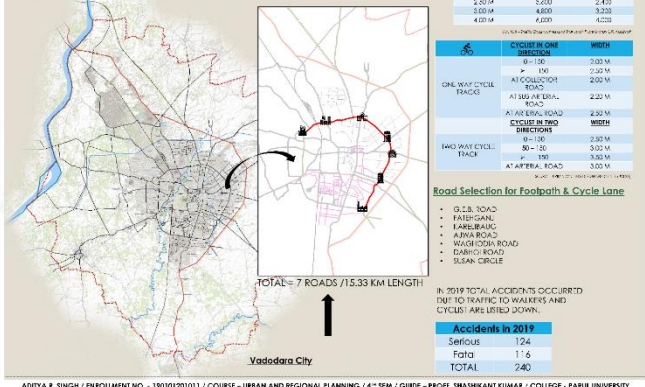


EXISTING ROAD NETWORK AND PROBLEMS :-

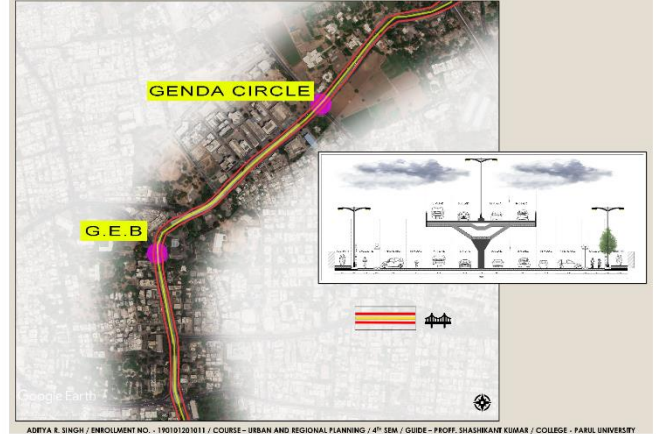


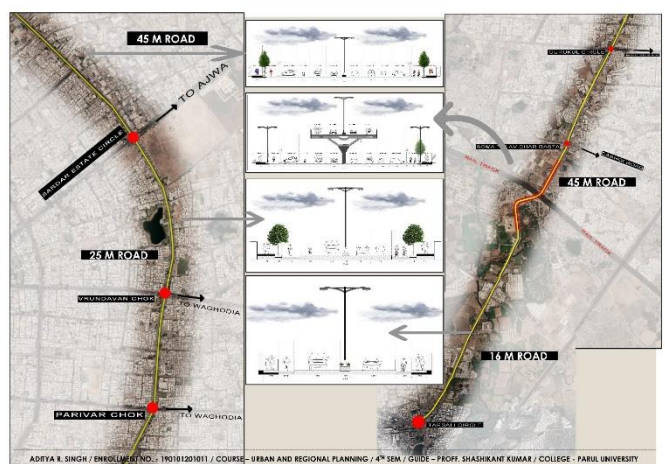
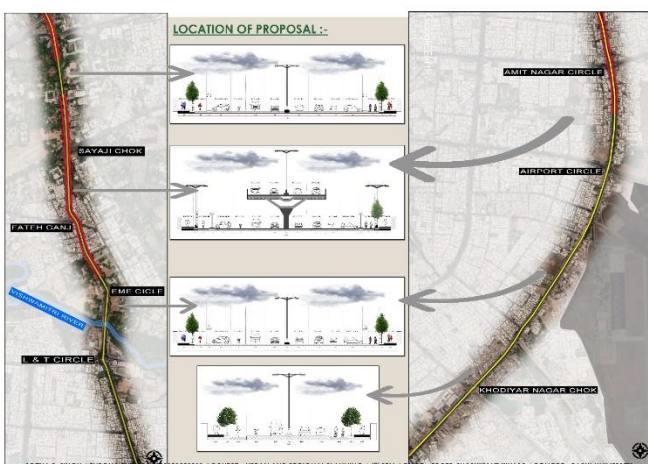
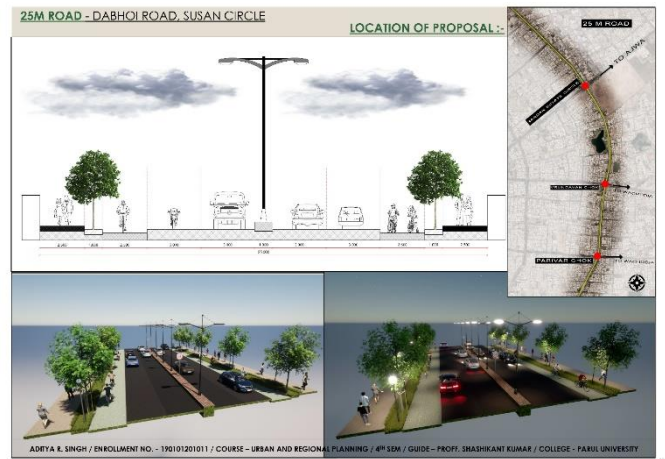
PROPOSAL :-

FOOTPATH ROUT AND CYCLE LANE PROPOSAL :-



LOCATION OF PROPOSAL :-

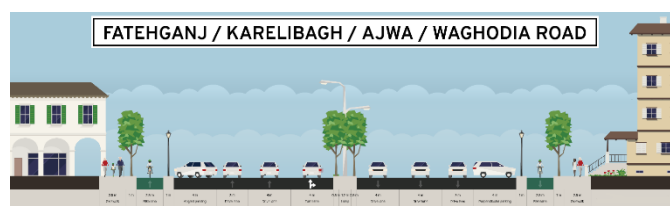




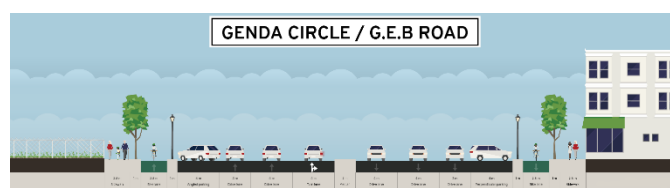
6. Key Component -

- a) Selected area will cover the following key sectoral components:
- b) Livability
- c) Dustbin free zone-16 collection van, 6 close body vehicles, and 3 plastic bottle crushers
- d) Smart Street lights: 2015 Smart LED light replacement.
- e) Up-gradation of 8.5 MLD capacity Sayaji Bagh STP and reuse of treated water for Landscaping/Gardening
- f) De-centralized STP of 2.5 MLD at Vadiwadi and reuse tertiary water for landscaping/Gardening
- g) 24X7 Water Supply: Upgradation of existing infrastructure
- h) Social inclusivity and economic effervescence
- i) Additionalities to Vishwamitri Riverfront, NMT infrastructure and other infrastructure will be developed along the Vishwamitri River.
- j) Slum-free area - Wellness and De-addiction center in the building: The slum will be removed and a new building will be developed with a common reading room the building to empower education to slum children.
- k) Library with digital facilities: Construction of 2 no of the library in MS university campus of 2000 soft area having smart features such as a computerized library, e-books, in the library.
- l) E-Learning (digital inclusiveness)
- m) Corporation School + Smart Night Classes for Adult Education-There will be 4 no's of e-learning centers of 500 soft areas having facilities for all children.
- n) Ethnicity and Legacy

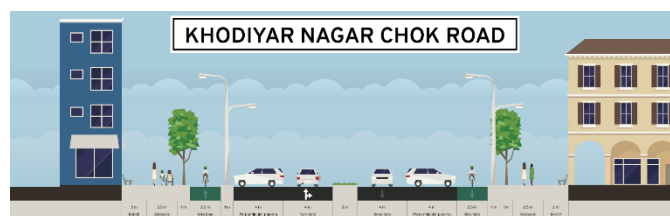
7. Proposal / Conclusion -



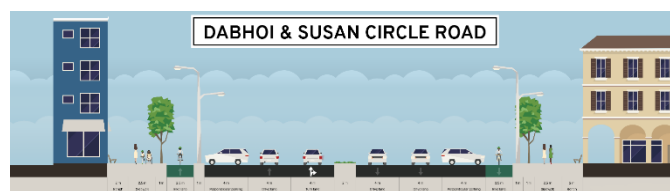
In This Location Stretch Fatehganj, Karelibagh, Ajwa, Waghodia Road Are Re-Designed.



In This Location Stretch Genda Circle, G,E,B Road Are Re-Designed.



In This Location Stretch Khodiyar Nagar Chok Are Re-Designed.



In This Location Stretch Dhaboi & Susan Circle Are Re-Designed.

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