

URBAN LAND USE STRATEGIES AND INFRASTRUCTURE PROVISION IN AHMEDABAD CITY

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ABSTRACT: *The rapid expansion of urban areas due to rise in population and economic growth is increasing additional demand on natural resources thereby causing land-use changes especially in megacities. Therefore, serious problems associated with rapid development such as additional infrastructure, informal settlements. Land use planning is understood as a systematic and iterative procedure carried out in order to create an enabling environment for sustainable development of land resources which meets people's needs and demands. It assesses the physical, socio-economic, institutional and legal potentials and constraints with respect to optimal and sustainable use of natural resources and land and empowers people to make decisions about how to allocate those resources. In this Dissertation work land use strategies are studied and analyse with infrastructure provision and development.*

Keywords: *Land Use, Infrastructure Provision, Suburbs, Agglomeration, Sprawl, Fringes*

1) Introduction: City development planning involves the physical, economic and social planning of development with its sustainability within city and its suburbs and has more of land use content. As the rapid growth of the urbanized population in developing countries acquires noticeable proportion, the study of urban settlements and its relation to infrastructure developments attracts greater scope of analysis for the planners, researchers in general. Overconcentration of population in large cities the problems in relating land use and infrastructure have led many scholars to claim that there is an increasing "trend of over urbanization". This paper analyses the land use development and provision of infrastructure in one of the new Metropolitan Cities of India; Ahmedabad with special emphasis on its urban land use. A radial pattern of urban land use and growing infrastructural amenities surrounding it once again establishes the requirement of balanced urban characteristics, exclusively coherent to Ahmedabad Urban Agglomeration. A rapid urbanization though ensures enhanced availabilities of high quality infrastructure in preferred locations close to urban fringes but also leaving urban sprawls undeveloped or partly developed and suffers from rapid loss of green peripheries with rural inhabitants while 'swallowing up' of villages with sound economic segregation very much prevalent. Migration into the cities of developing economies had in the past been a phenomenon exclusively of rural to urban

movements. In Ahmedabad, 58% of migrants to the city generally migrate from other urban areas that pose a challenge to the city planners in the context of land use planning and Provision of Infrastructure. Arther T. Row identified the goals of urban planning while preparing the Comprehensive Plan for Philadelphia in the United States. He considered better transport, better housing, more useful open spaces, more employment, and lubrication of the difficult problems of the city. Such concepts can be well implemented in Ahmedabad as well given its immense growth potentialities regarding to Land use planning and Provision of Infrastructure on the same.

2) Study Area: Ahmedabad, the Industrial and financial capital of Gujarat, is the seventh largest metropolitan city in the country in terms of population. It is situated in the Central zone of Gujarat, at an average elevation of 48.77 Metres above sea level, and is located at 22° 58' N 72° 58' E. The Ahmedabad Metropolitan Region borders with Gandhinagar district in the north. The government of India has selected Ahmedabad, a new metropolis, as a category A city, for assistance under Jawaharlal Nehru Urban Renewal Mission as a test example. The city in the recent past of textile industry which blink it as a favoured destination for most high technology industries and has consequently witnessed a significant in-migration. Recently Ahmedabad city is declared as a world's no.1 Labour Centre for the I.

T. Industry. However, rapid in-migration of population from the other parts of the Gujarat itself has posed immense challenges on the city's overall carrying capacity as far as land use and Infrastructural amenities are concerned. Holistically it witnesses a noticeable change in its once existing land use that was much of sectorial to a radial well-

established land-use pattern. The growth in recent times inclines North-West ward owing to the availability of open spaces. This study enhances changing land use in the backdrop of urban morphology model (Burgess, 1925) that re-establishes itself with further planning in Ahmedabad

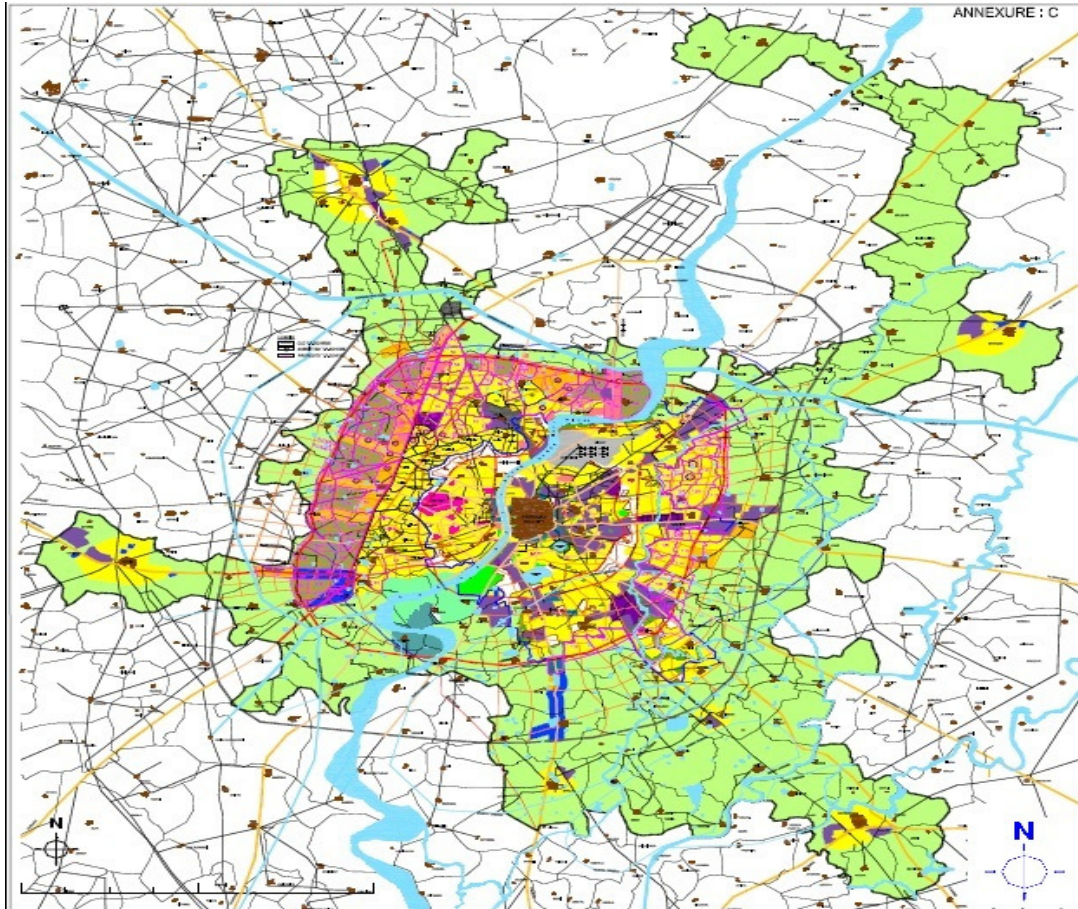


Figure: Proposed Land use Plan 2011 AUDA ^[1]

Ahmedabad's Evolution: A Chronological Tour
History of Ahmedabad dates back to the Mughal Age, when stone implements were found. Merely a village during the Ahemadshah Empire in, the city of today emerged to be a chief centre of trade in under Mughal Empire by following Patan, a capital of Solanki Empire. Under direct British rule Ahmedabad became their Administrative Headquarter. The Town then fast evolved as centre of 'Educational and Cultural Centre' after establishment of Gujarat University. After Independence, Ahmedabad Municipal Corporation came into being in half of 19th century with the perfect merging of the City proper, civil and Military Centres. Eventually in the latter half of 21st Century Ahmedabad became the preferred location for software industries.

While this transformation, the haphazard development of the city radial in all directions created immense pressure on the provision of infrastructure. Several research works done in this area has given recommendations through different policies for the land use pattern through land reservations. But these recommendations feasibility with rapid growth of population needs to be analysed. As in the other cities of the world, the increasing trend of urbanisation has continually expanded the area of the city. The rapid growth in city area in the period 1981-1991 was due to the merger of the eastern side of Ahmedabad city with effect from 23rd February 1986. This has led to a city jurisdiction of about 190.84 square kilometres as per the 2001 Census.

3) Methodology: As far as methodologies is concerned this study adopts a much more visual approach in spatial parameters that includes changing land use of the new Metropolitan City at present. A rising population and fast urbanization induces the city once adored by Badshah Ahemadshah to expand radially in all directions to accommodate the former. Land Use of Ahmedabad was much haphazard in the beginning with sectors of services growing here and there, but later it took a concentric shape along the centripetal transport linkages. Land requires various uses that do evolve through the years that have spatio-temporally accounted for in this paper. Also, the study confirms the change of position of Ahmedabad in regard to population from 1872 and 2001-11. Besides several reasons are analysed during the study period are also covered in the work.

4) Findings:

i. Population in Ahmedabad: An Increasing Trend

The population in the AMC limits increased to 35.15 lakh in 2001 from 28.77 lakh in 1991. The population in AUDA area in 1991 was 38.75 lakh. The Ahmedabad Urban Agglomeration (AUA) housed 23.25 % of the State's urban population in 1991, which has gone up to about 25% in 2001. Compared to other metropolises in India Ahmedabad has a lesser degree of primacy and urban population is spread evenly across other metropolitan and class I

CANCUS	POPULATION	GROWTH
1871	116,900	—
1901	185,900	—
1911	216,800	16.6%
1921	270,000	24.5%
1931	313,800	16.2%
1941	595,200	89.7%
1951	788,300	32.4%
1961	1,149,900	45.9%
1971	1,950,000	69.6%
1981	2,515,200	29.0%
1991	3,312,200	31.7%
2001	4,525,013	36.6%
2011	6,352,254	40.4%

cities in the State.

Table: Population Growth and GR of Ahmedabad: 1872-2011^[2, 3]

ii. Land use of Ahmedabad as Evolution Through Age

- The AMC area is spread over 190.84 sq. km, the AUA area is about 350 sq. km and AUDA area is 1330.08 sq. km. Spatial distribution of this population within the city over the decades shows that up to 1981 most of the new population added to the city was concentrated within the old AMC limits itself, especially in the eastern part.
- Expansion of the peripheral areas began in the 1980s and has continued. Earlier only the eastern parts and particularly the eastern periphery registered faster growth rate, but since the 1980s even the western periphery has grown rapidly.
- The greater Ahmedabad area has grown at a moderate rate. Growth rates have declined from 3.2 to 2.2 percent (compounded per annum) during the past two decades, however, the rates vary across different spatial units. The population within the AMC limits appears to approach a stabilization level. Table: Area Growth and GR of Ahmedabad: 1871-2001^[3]

CANCUS	AREA (Sq. km)	PERCENTAGE GROWTH (%±)
1872	5.57	—
1881	5.95	3.96
1891	11.42	92.04
1901	14.93	30.68
1911	23.08	54.59
1921	23.96	3.82
1931	25.29	5.54
1941	52.47	107.46
1951	52.47	—
1961	92.98	77.22
1971	92.98	—
1981	98.15	5.56
1991	190.84	94.44
2001	190.84	—

iii. Development of Ahmedabad in Typical Concentric Pattern

- The areas adjoining AMC, falling within AUDA limits have shown rapid growth. Gandhinagar is also experiencing relatively high rate of growth

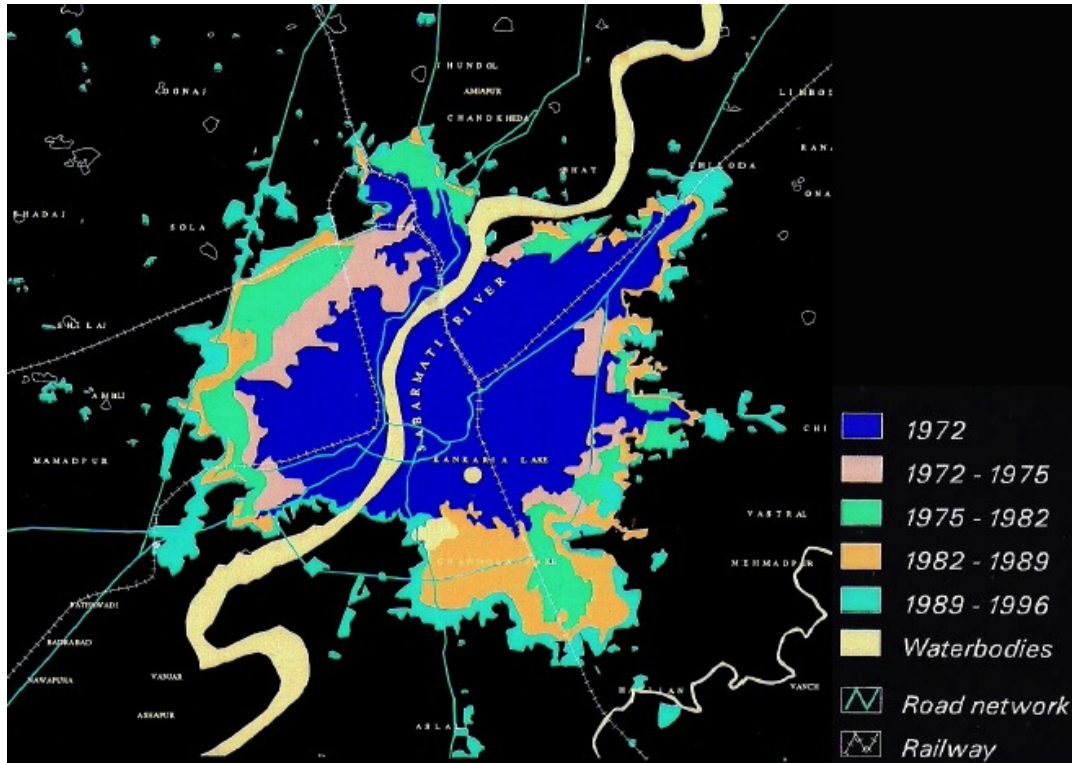


Figure: Map of Ahmedabad Growth Pattern ^[1]

- The areas adjoining AMC, falling within AUDA limits have shown rapid growth. Gandhinagar is also experiencing relatively high rate of growth. As stated above the population growth in the peripheral areas is more rapid than the areas within the city limits. This is partly due to the saturation of population within the city area and the consequent large-scale housing development in the peripheral areas.
- The contrasting spatial patterns observed in the eastern and western areas of AMC have extended into the peripheral areas in the same manner. The western part is experiencing more rapid growth than the eastern part. Rapid growth in the form of ribbon development along the Sarkhej - Gandhinagar highway is being witnessed during the 1990's. These trends are likely to intensify further in the coming decades.
- It is also a noteworthy feature that the spatial expansion of Ahmedabad is largely contiguous and relatively compact.
- It was Burgess who remarked that "an ideal construction of the tendencies of any town or city to expand radially from its central business district". Encircling the downtown area there is normally an area of transition which is being invaded by business and light manufacture. A third area includes the area of workers who desire to live within easy access of their work. Beyond this zone remain the residential zones surrounded by the commuters' zone. Generally, the Ahmedabad Urban Agglomeration

exhibits a 25% coverage under core areas, 34% under rural fringes and lying in between are the added semi-urban areas or the urban fringes.

5) Conclusion: In order to transform Ahmedabad as world-class Metropolitan City providing its dwellers a high quality of life in a sustainable environment, with state of the art infrastructure, service delivery and connectivity supported by an efficient governance framework, is indeed a challenge. The vision remains to develop sustainable city infrastructure with efficient land use. Also, provision of focussed development and sustenance of high-quality urban services such as water supply, sewerage, municipal solid waste management, sanitation, roads and power systems included in infrastructure are the top priorities for the city planners. "Strong walls do not make a City. Neither the places nor complexes nor all the well-tended parks and civil centres in the world can make city thrive. It is the human skill, investment, power, transport, water, living and working space that make a city feel like reaching up to the skies (Mitra, 1963)".

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