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Transformation of Urban Structure and Emergence of Higher-Order Commercial Areas- Case of Ahmedabad, India

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Abstract

The rise of big cities with rapid population growth is turning prominent in India's urbanization scenario. With large number of population getting added at rapid rate, the large cities have observed significant spatial expansion and transformation of urban structure to polycentric one. City of Ahmedabad that evolved from medieval Walled City to now having around 7 million population has an evident ring-radial urban structure expanding around 10-12 km from its historic nuclei in all directions. In the process, agglomerations of higher-order commercial activities that serve a large part of city, account for large no. of jobs and play important part in physical and economic functioning of the metropolis have emerged at favorable locations. This paper studies relative significance and development characteristics of three important Higher-Order Commercial Areas (HOCAs) of Ahmedabad. The learning shall be useful for integrating existing HOCAs and facilitating development of new HOCAs through comprehensive planning.

Keywords: Polycentric Urban Structure, Higher-Order Commercial Areas, Nodal Significance, Commercial Activities, Development Characteristics.

1. Introduction

India, improving its position amongst developing countries, is observing strong economic growth and remarkable rate of urbanization having interrelation with one another. The two very crucial aspects of India's urbanization are- the sheer size of urban population, and its rapid growth. Further, the rise and rise of big cities is changing the urbanization scenario. The economic liberalization reforms adopted by the Government of India in early 1990s, India's improved participation in globalization, growth of non-primary economic activities; improved social and physical mobility, education and job-skills; increased investments and per capita income, and rise of consumerism- all contributed to transformation of India's urban system in last three decades. As per Census of India, while there were 23 numbers of million-plus cities in 1991 which accounted for 32% of urban India, numbers of million-plus cities increased to 53 accounting for 42% of urban population by 2011.

Ahmedabad, the largest city of Gujarat State located in western part of India, is 7th largest in India. As per Census 2011, urban agglomeration of Ahmedabad reached 6.35 million population. The city of Ahmedabad has evolved from medieval Walled City to an evident ring-radial urban structure with sprawl up to around 10-12 km from its historic nuclei in all directions. Parts of Walled City that were located centrally around public institutions, religious places and along few strategically connecting thoroughfares thrived as the 'market' of the medieval town. Even after the city started expanding beyond, the Walled City area had been the central business and commercial area for many years. However, as the city continued expanding farther, commercial activities first spilled over in nearby areas and then leap-jumped in newly developed areas. In the process, several commercial agglomerations of higher hierarchy have emerged at favourable locations. This paper reviews transformation of Ahmedabad into polycentric urban structure, identifies important Higher-Order Commercial Areas (HOCAs), and analyses their relative nodal significance and characteristics of development therein.

2. Evolution of Ahmedabad and Transformation to Polycentric Urban Structure

Sabarmati River which passes north-south through the city has been a critically important element in city's evolution. In 1411 AD, the then provincial king Sultan Ahmed Shah built a citadel and founded Ahmedabad on the east bank of Sabarmati River. Densely packed community-based neighbourhoods known as 'Pol' having vernacular architecture got built along meandering network of narrow streets organically over the period of time, and formed a very peculiar urban morphology. A peripheral wall with 12 gates was enclosing this area measuring around 5.5 sq.km. Although most parts of the wall are non-existent now as the city has expanded much beyond, this nucleus i.e. Walled City area still holds a strong distinguished formal identity in the metropolis of Ahmedabad. Introduction of railway lines in 1864 and development of textile mills during 1860s-1890s in the east of Walled City triggered development eastward outside Walled City. Subsequently, construction of 1st bridge across River Sabarmati i.e. Ellis Bridge, in 1892, enabled the city to expand westward on the other side of the River. In the following decades, many more textile mills sprung up in eastern parts making Ahmedabad known as 'Manchester of India'. Along developed 'chawls'- low-rise high-density housing

typically having compact size houses and shared facilities, and other housing mainly catering to industrial workers, labourers and other low-income households. Meanwhile, building of more river-bridges improved connectivity with the western areas which observed development of some major institutions, university campuses, and residences of relatively higher income groups. The further evolution of the city embraced Hoyt's Sector Theory. The activities that were predominant in different parts around Walled City expanded outward as the city grew farther. Arterial Roads gave directional effect to land use prevailing in an area to expand further outward.

The urban form of city is based on a ring-radial pattern of arterial roads with the urbanized area extending farther along major radial roads. The city exhibits a gradual tendency of dispersal, although compared with some other mid-sized metropolitan areas of the world, it is relatively compact (Adhvaryu, 2011). As presented in the figure below, the urban sprawl is now spanning up to around 10-12 km from the historic nuclei in all directions. In 2013, a 60.0 m wide ring road having length of 76 km and encompassing around 410 sq.km. was developed on the urban periphery. At present, Ahmedabad's municipal limit spreads over 464 sq.km.

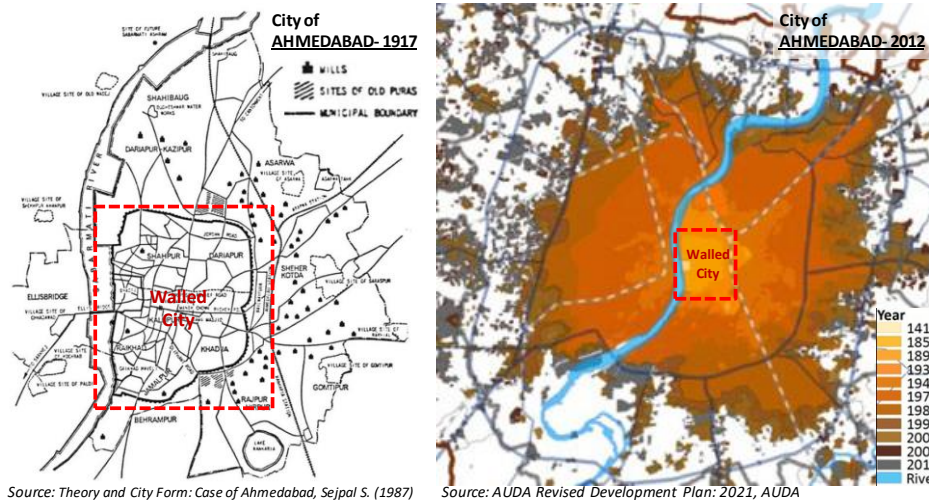


Figure 1. Spatial Expansion of City of Ahmedabad: 1917 to 2012.

It can be observed that density gradients in Ahmedabad are becoming flatter over the years. In other words, this indicates a gradual decline in city centre densities: that is, people moving out from more central areas to suburbs as the city spreads out. By this measure, Ahmedabad has been exhibiting a tendency toward 'spreading out' (Adhvaryu, 2011). Along with the increasing population, large share of migrants in population rise, reducing household size, economic growth, increase in income levels, rapidly increasing car ownership, credit availability, supply of serviced land and expansion of infrastructure in newer areas by concerned public authority, real estate demand-supply are plausible factors causing spatial expansion and density dispersal of the city.

As the city grew in terms of population and area, a number of nodes characterized by certain kinds of development got established. The Development Plan- 2021 of Ahmedabad Urban Development Authority presents maps of existing land use and commercial development as shown below in Figure 2. Based on the study of city's evolution and predominant land use pattern, a simplified schematic macro-matrix of Ahmedabad's urban structure is prepared and presented hereinafter in Figure 3.

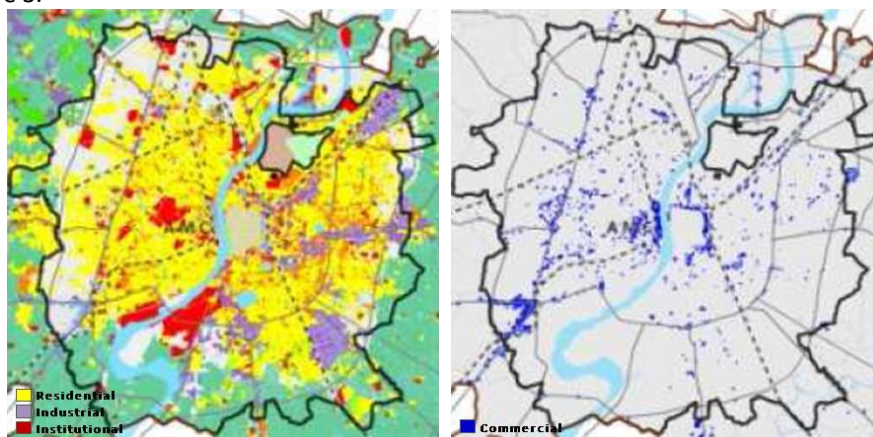


Figure 2. Existing Land Use.

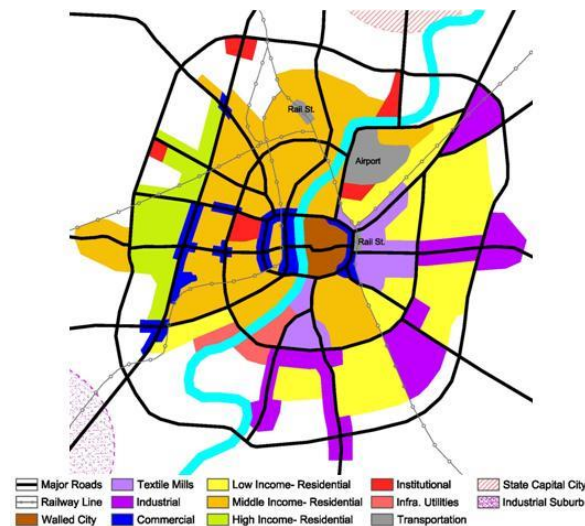


Figure 3. Schematic Macro-Matrix of Ahmedabad's Urban Structure.

As indicated in these maps, large nodes of industrial development are formed in east and south Ahmedabad. Gujarat Industrial Development Corporation (GIDC), a state-agency having the mandate to promote and facilitate industrial development, developed large industrial estates in the then eastern peripheral areas. Several other industries, ancillary and service units mushroomed around. A large institutional node is located in central areas of West Ahmedabad, while most of the other institutional nodes have come up in northern and western areas. Commercial development in Walled City has spilled over in adjacent areas. While, commercial land use exists in certain parts of east Ahmedabad, the major commercial nodes/centres are progressively formed in west Ahmedabad- first, on the west bank of Sabarmati River and in nearby central area, and thereafter along some arterial roads and major road junctions in further west. Partly due to predominance of industrial development and resultant profile of housing stock and resident groups in large parts of East Ahmedabad, and partly due to directional effect led by arterial roads as presented by Hoyt, housing of relatively higher income groups, educational and other institutional campuses, commercial and mixed development have come up more prominently in West Ahmedabad. The evolution of the city so far has formed two quite distinct parts of city on either side of River Sabarmati i.e. East Ahmedabad and West Ahmedabad.

3. Emergence of Higher-Order Commercial Areas

Walled City being the nucleus of the city and being nearly a geographical centre has been the heart of town for many decades and still functions as an important commercial and business centre. Commercial development along major thoroughfares within and adjacent to Walled City have characteristics of typical Indian *bazaar* where different street markets are famous for particular types of goods/products. Wholesale markets, informal vendors, workshop-cum-shops with residences on upper floors account for a large part of commercial activities here.

Along with the expansion of city beyond Walled City, when textile mills were booming in east, some important public institutions established near west bank of Sabarmati River. In 1916, Mahatma Gandhi founded his Ashram here and this area got named 'Ashram Road'. Offices and campuses of public institutions like Income Tax Department, All India Radio, Reserve Bank of India, Gujarat High Court, City Hospital, Town Hall got built along Ashram Road in following decades. Having proximity to Walled City and presence of esteemed institutions, it attracted development of offices of industry associations, co-operative societies, banks, private businesses and professionals. Moreover, coming up of retail showrooms, cinema halls and hotels also played an important role in emergence of Ashram Road as an important commercial area. The area was recognized as Ahmedabad's most sought-after and most expensive commercial area around 1970s-1980s. In following decades, certain other areas along arterial roads, major junctions observed large agglomeration of commercial activities. The scenario of jobs and employment sub-centres as studied by Munshi, Brussel, Zuidgeest, Maarseveen(2018) is represented in following Figure 4 and Table 1.

As these maps present, Walled City area dominates in terms of higher density of jobs over a large area and houses highest number of jobs in the city. Although there is wide-spread presence of higher job density across east Ahmedabad, those are distributed in several pockets with each pocket catering around or less than the mean number of jobs. Moreover, industrial activities predominant in all these pockets in east except one (no.4) suggest the jobs in these pockets in east are mainly in industries and allied units. On the other side, in west part, the jobs are concentrated in fewer pockets of which two large areas have high job density and ranks 2nd and 3rd in terms of number of jobs. An important job centre and commercial area having as much city-wide significance as Walled city now functions on west banks of Sabarmati River i.e. sub-centre no.2 shown in right-side map in Figure 4. Sub-centre no.2 comprises areas of Ashram Road and CG Road which are the key contributors in jobs therein.

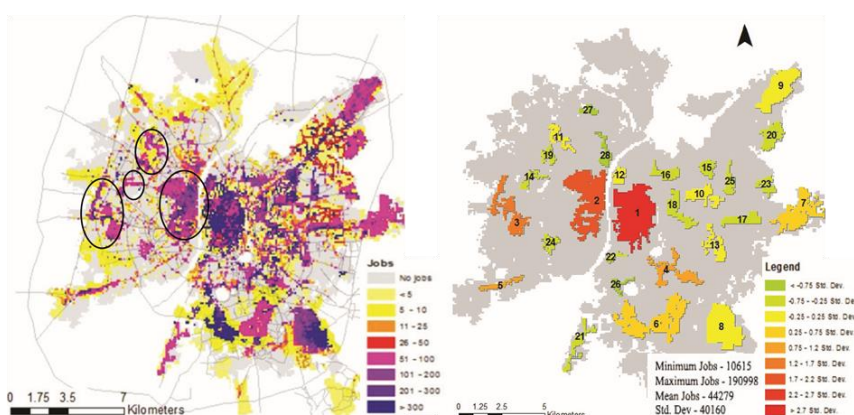


Figure 4. Jobs Density and Employment Sub-centres (Munshi et al, 2018).

Table 1: Jobs at Top-5 Employment Sub-centres (Munshi et al, 2018).

Employment Sub-Centre	1980		1990		2000		2010	
	Jobs	% of Total Jobs	Jobs	% of Total Jobs	Jobs	% of Total Jobs	Jobs	% of Total Jobs
1	83200	23%	95776	17%	148513	12%	190998	11%
2	23436	7%	33490	6%	92093	8%	123277	7%
3	1151	0%	5148	1%	84697	7%	109879	6%
4	29782	8%	43467	8%	67423	5%	86094	5%
5	1185	0%	2335	0%	46384	4%	77453	4%

The trend since 1980 indicate, while no. of jobs has increased with time at all top-ranked employment sub-centres, the share of Walled City in total jobs of Ahmedabad has declined from 23% in 1980 to 11% in 2010. Although, the share of Sub-centre-2 (includes Ashram Road and CG Road) remained nearly constant around 7%, no. of jobs here increased at 5.7% CAGR during 1980-2010 compared to 2.8% CAGR in case of Wall City during the same period. Another sub-centre emerged during 1990-2000 in the then western peripheral area around SG Road, and it moved up to 3rd rank with remarkable increase from 1% to 7% share of total jobs in the city.

Post economic liberalization in India in 1992, the growth of secondary and tertiary sector economic activities led to a boom in real estate market in mid-to-late 1990s. New commercial buildings started coming up on CG Road changing the identity of the erstwhile residential area to Ahmedabad’s new vibrant retail and commercial hub. Soon after advent of 21st century, clusters of large-footprint commercial buildings came up around major junctions on arterial roads and on SG Road located in the then western peri-urban areas. These locations offered good accessibility with wider roads, and emerged like outer sub-centre. The top-3 ranked areas, in 2010, accounted for nearly one-fourth jobs of the city which is higher than the share Walled City had in 1980. On the other hand, compared to 2000, the share of top-3 ranked areas in total jobs declined marginally and the share of few other smaller centres has increased due to dispersal of jobs backed by sprawl and density dispersal being observed in the city. This indicates that emergence of newer and future job centres is under way in the process of further transformation.

The study of retail floor space and office floor space with respect to age of property as presented by Munshi et al (2018) also indicates that Ashram Road and CG Road started dominating around 1980-1990s and SG Road emerged in around 1990-2000s. It is important to note that new office and retail buildings developed in last decade have been relatively fewer in Walled City indicating decline in its significance. Moreover, retail floor space developed in last decade has high concentration along SG Road fostering its growth as a Higher-Order Commercial Area of city-level significance. Further, the data of properties registered with Ahmedabad Municipal Corporation has been studied. As presented in following Figure 5, in West Zone and New West Zone of Ahmedabad Municipal Corporation, ratio of non-residential properties is highest in SP Stadium Ward which includes Ashram Road and part of CG Road, followed by Jodhpur Ward and Navrangpura Ward which include SG Road and CG Road respectively. Considering the land use predominant in these areas, most of the non-residential properties shall be commercial ones.

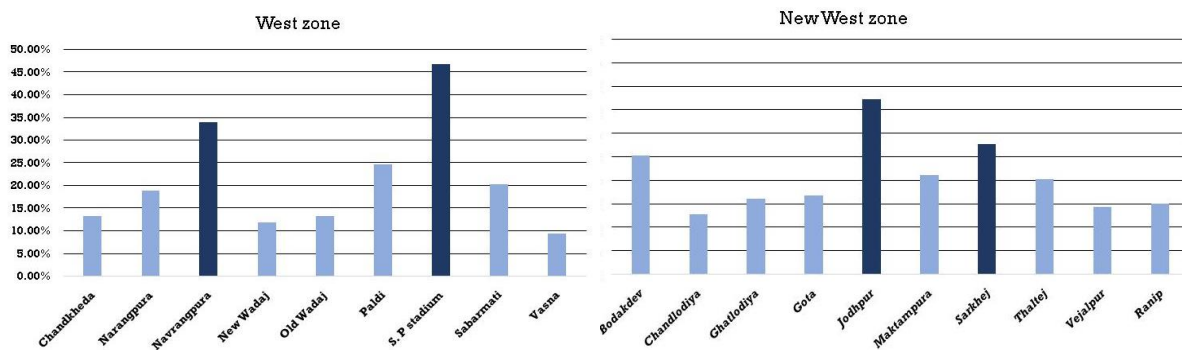


Figure 5. Ratio of Non-Residential Properties in Municipal Wards of West Ahmedabad.

Ashram Road and CG Road, constituents of Sub-centre-2 shown in Figure 4, are considered as two distinct Higher-Order Commercial Areas due to differences in- i) timeline of their emergence, and ii) character of built development and commercial functions. Sub-centre-3 in western peripheral area is spreading along SG Road which was built as highway between Sarkhej and Gandhinagar. As the city’s sprawl expanded, interaction-flows between Ahmedabad and peri-urban areas increased, the road started being used more and more by urban commuters and the adjacent area got developed to urban uses. While commercial buildings, clubs, malls, multiplexes, hotels developed along large part of SG Road in linear manner, clustering of premium cutting-edge office buildings, branded retail stores had come up in Prahladnagar area located near the southern end of said commercial strip on SG Road. This area is now known as Prahladnagar Corporate Road owing to large number of new corporate offices including multi-national and foreign companies that started functioning here in last 10 years. Thus, it is inferred that Ashram Road, CG Road and Prahladnagar (SG Road) area are the three most important Higher-Order Commercial Areas of Ahmedabad. These areas are studied further to assess their nodal (location) significance as Higher-Order Commercial Area in the urban structure of Ahmedabad.

4. Relative Nodal (Location) Significance of Identified Higher-Order Commercial Areas

More central and accessible the location of an area in a city, the area has greater potential to get developed as CBD or higher order commercial area. In other way, a commercial area located more centrally can potentially serve entire city or a large part of it, and hence have high significance as city’s higher-order commercial area. In order to understand centrality of identified higher-order commercial areas, the municipal extent of Ahmedabad is mapped and divided in a grid of 1km x 1km. Each grid is assigned a proximity score based on its distance from the grid of subject area of which the centrality is being examined. The grid of subject area is considered as Grid 1 and assigned a score of 1, and the set of grids encircling around it is assigned proximity score of 1/n where ‘n’ is sequence number of a grid from the subject area grid. The set of grids next to subject area grid is considered as set of 2nd grid and grids further next as 3rd grid, and respectively assigned proximity score of 1/2, 1/3 and so on. Proximity score thus assigned to each grid with respect to subject area grid is summed up to derive Geographical Centre Value of subject area. Summation of proximity score of each grid comes to be higher when more grids are located nearer and lesser grids are located at farther distance from subject area. Thus, higher Geographical Centre Value means subject area is located more centrally within the physical extent of city.

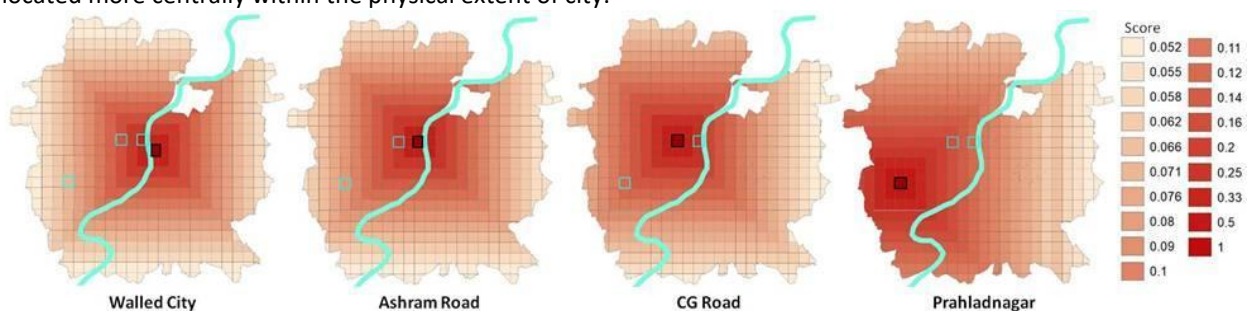


Figure 6. Proximity Score with respect to Walled City and Identified Higher-Order Commercial Areas.

The Geographical Centre Value derived for Walled City and three identified HOCAs are converted to Geographical Centre Index (Geographical Centre Index for subject area = Geographical Centre Value of subject area/highest Geographical Centre Value). It is important to note that the grid representing Walled City area is having highest Geographical Centre Value and hence Geographical Centre Index of 1. Ashram Road and CG Road have Geographical Centre Index of 0.99 and 0.98 respectively, as they are located nearly in central part of current city limits. Prahladnagar is located in south-west part of city and has Geographical Centre Index of 0.87.

While, spatially central location has potential to serve larger area, potential to serve larger population very much depends upon concentration or dispersion of population within city limit. Proximity to densely populated area enables HOCA to effectively cater or serve larger population. An area having geographically off-centred location may still possibly serve larger population due to higher population density in that part of city. Hence, based on ward wise population data of 2011, population density of each grid is derived and mapped as shown in Figure 7 below. And, each grid is assigned score of density-distance function i.e. multiplication of density of a grid with its proximity score with respect to subject area grid as shown in Figure 8. Summation of density-distance function score assigned to each grid with respect to subject area grid represents Population Centre Value of subject area. As several grids in east Ahmedabad have higher population density, Walled City having closer proximity to these areas obtained higher Population Centre Value than the three identified HOCA.

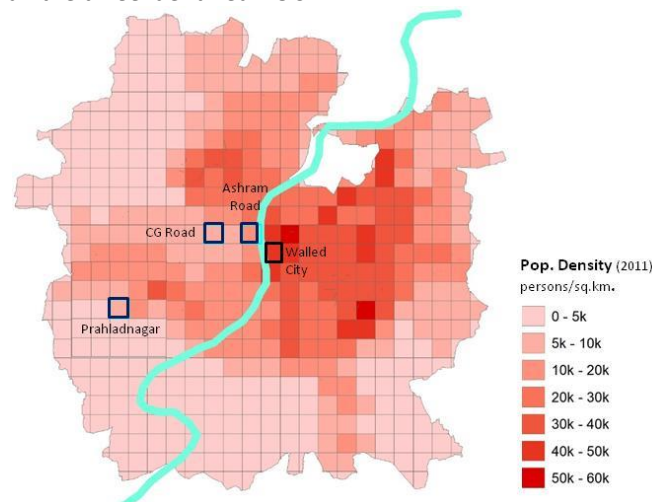


Figure 7. Population Density (2011): Grid-wise Representation.

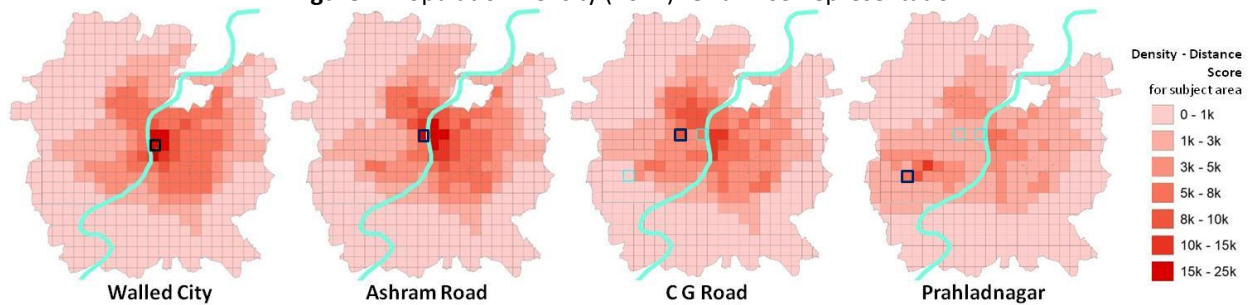


Figure 8. Density-Distance Score with respect to Walled City and Identified Higher-Order Commercial Areas.

Walled City having highest Population Centre Value is assigned Population Centre Index of 1, in relation to which index of three HOCAs are derived. Population Centre Index of Ashram Road, CG Road and Prahladnagar comes to be 0.91, 0.82 and 0.57 respectively. While Population Centre Index of Ashram Road and CG Road is marginally lower than their respective Geographical Centre Index, Population Centre Index of Prahladnagar is very much lower than its Geographical Centre Index as it is located far from the densely populated area and is surrounded by relatively low-density area.

Further, accessibility of the identified HOCAs from different parts of city is also an important aspect. As mentioned earlier, Ahmedabad has a ring-radial pattern of arterial road network which provides nearly uniform road connectivity at macro-level across its geographical extent. The study reviewed accessibility of identified HOCAs through public transportation. The city currently has a city-bus transport service namely Ahmedabad Municipal Transport Service (AMTS) and a Bus Rapid Transit (BRT) with exclusive dedicated bus-lane, while the Metro-rail lines are under construction. The routes of AMTS and BRT passing through identified HOCAs are mapped as presented under.

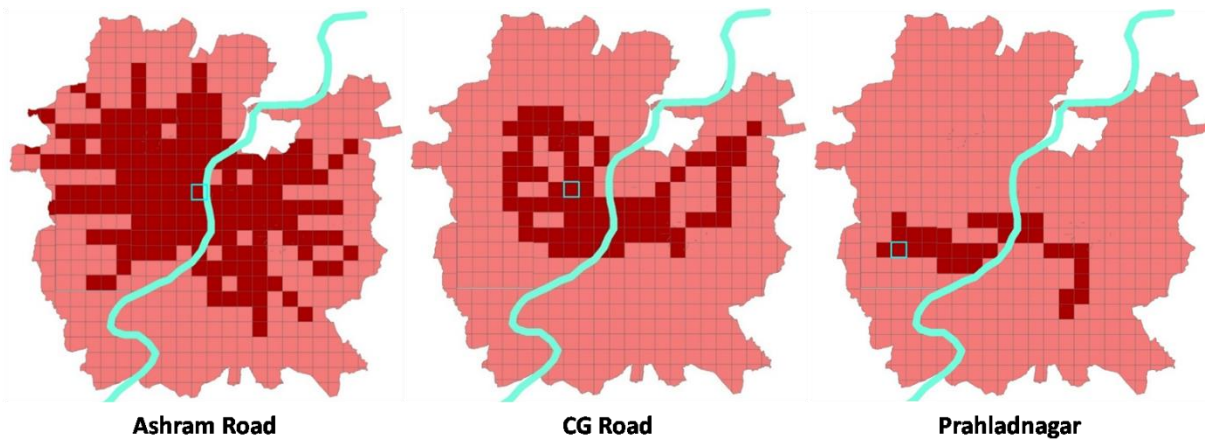


Figure 9. Public Transport Accessibility of Identified Higher-Order Commercial Areas.

With 63 routes of city-bus passing through Ashram Road, it is accessible to 58% of city's population through public transport. CG Road despite of being located in central part nearer to Ashram Road has limited public transport access. With 8 city-bus routes passing through, it is accessible to 30% population that is nearly half compared to Ashram Road. Prahladnagar, with only 2 city-bus route connectivity, offer public transport accessibility to only around 12% of city's population.

5. Characteristics of Development at Identified Higher-Order Commercial Areas

All three identified HOCAs are surveyed and details regarding land use, building use, building height, floor-wise use pattern, functions/activities, and other relevant details are documented in order to assess extent, type and manner of development in these areas. The Ashram Road area is largest of the three spreading over around 125 Ha, followed by CG Road having an extent of around 85 Ha. While Prahladnagar area admeasures around 55 Ha, there are other similar kind of commercial pockets located nearby on SG Road. The land use maps of Ashram Road, CG Road, Prahladnagar are presented hereinafter in Figure 10.

It is observed that, Ashram Road area comprises large area under Government Offices and Institutional use besides the predominant commercial land use. These are some important Government offices like Reserve Bank of India, Income Tax Office, Customs Office, which are in a way integral component of a CBD and contributes to its unparalleled importance in the city. CG Road has higher share of commercial land use (60%) compared to other two, as only fewer plots and smaller areas are under non-commercial use. Share of commercial land use in Ashram Road and Prahladnagar area is around 44% and 42% respectively. Amongst the three areas, Prahladnagar has largest share of residential development. Moreover, the share of vacant undeveloped land is also highest in case of Prahladnagar. It is very likely much of these undeveloped lands will foresee commercial development and the ratio of commercial use in Prahladnagar shall increase in coming times.

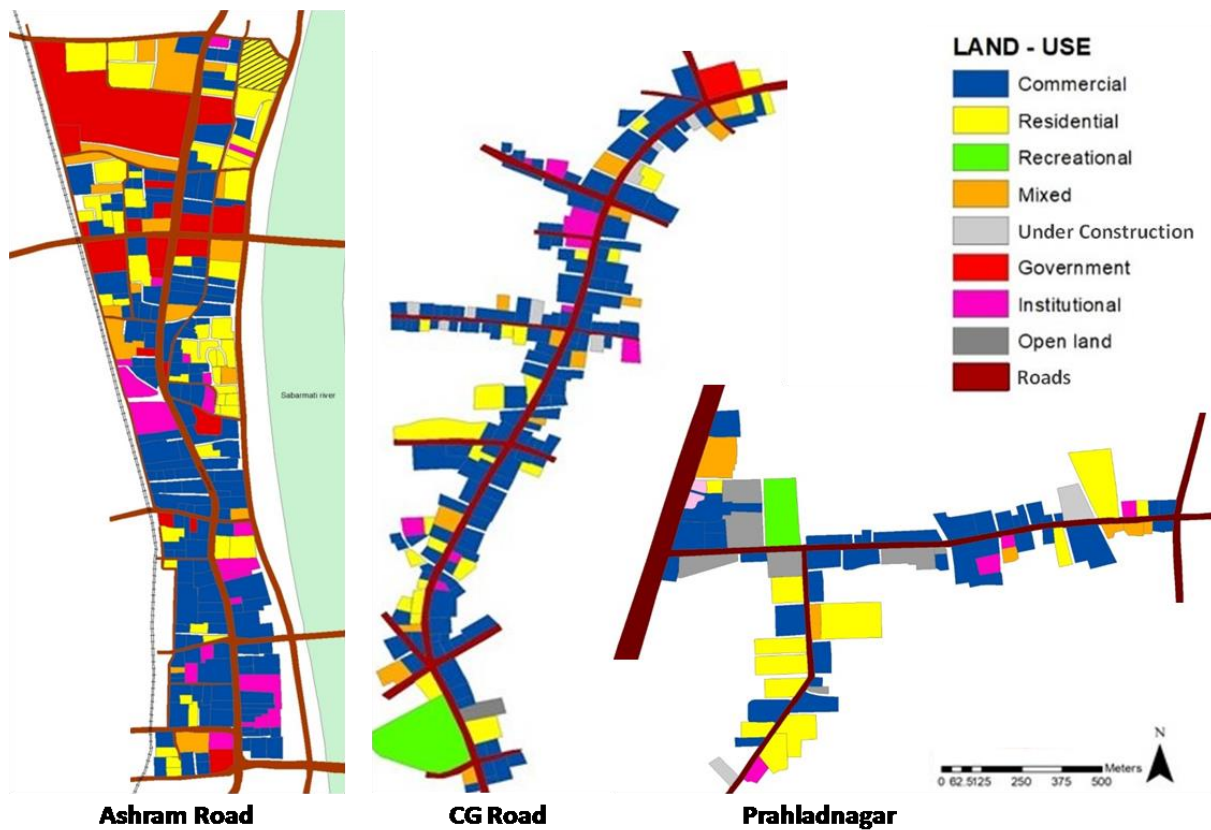


Figure 10. Existing Land Use Map of Identified Higher-Order Commercial Areas.

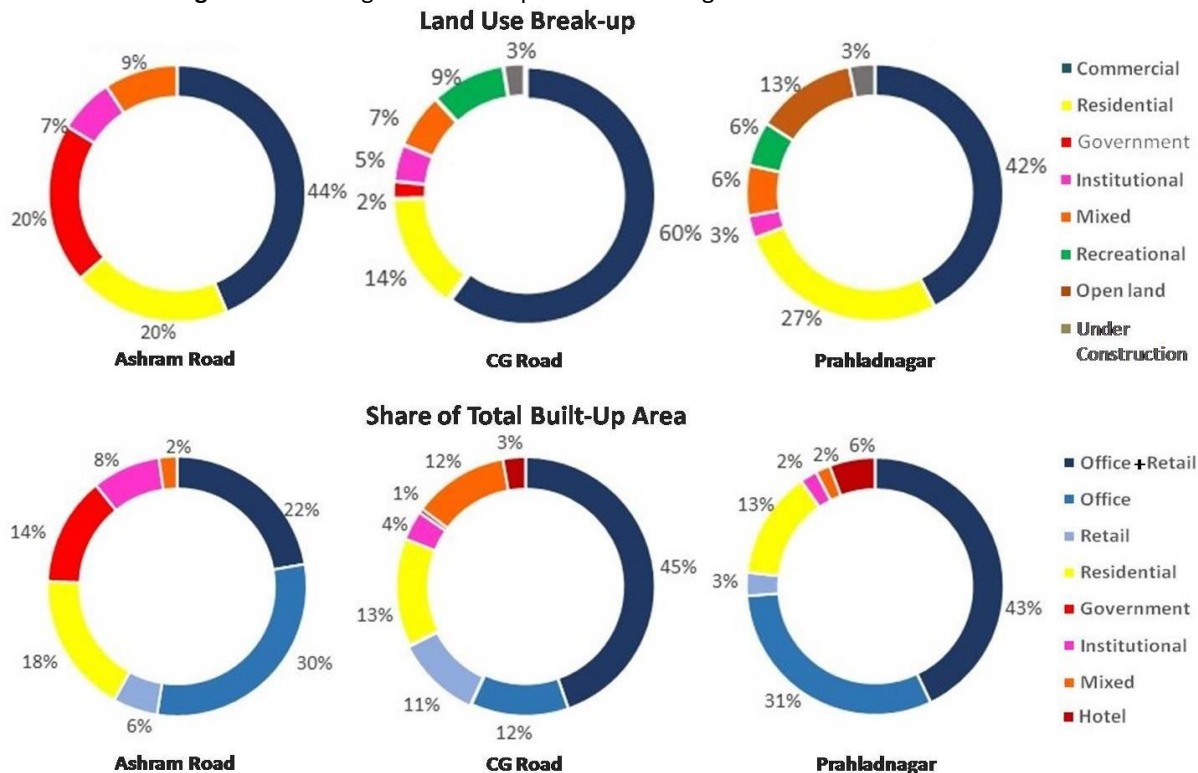


Figure 11. Share of Different Uses in Land Use and Total Built-Up Area at Identified HOCAs.

Further, the commercial development is classified into categories such as office building, retail building, office-plus-retail buildings, hotels. And, built-footprint area and total built-up area under these categories is analysed to understand the type of commercial activities, their mix, and their share in built-up area as prevailing in the three HOCAs. Key observations about the land use mix and share of different type of commercial development in built-up area are as under:

- The share of commercial development in built-up area is higher than its share in land use at all three HOCAs: by 14 percent points at Ashram Road, by 8 percent points at CG Road, and by 35 percent points at Prahladnagar.
- At Ashram Road, office buildings account for largest share i.e. 30% of total built-up area followed by commercial (office-plus-retail) buildings having 22% share, while retail buildings account for around 6% of total built-up area.
- In case of CG Road and Prahladnagar, commercial (office-plus-retail) buildings occupy largest share at 45% and 43% of total built-up area respectively.
- Office buildings and retail buildings at CG Road, account for nearly equal share at 12% and 11% of built-up area respectively.
- At Prahladnagar, office buildings occupy 31% of built-up area that is nearly equal to the share of office buildings at Ashram Road. Retail buildings account for only 3% of total built-up area.
- At Prahladnagar, the commercial development altogether account for around 77% of total built-up area which is remarkably higher than its share in land use (42%).
- In case of Prahladnagar, the share of commercial in built-up area jumps up so drastically partly due to its remaining area having low-density residential development.

The intensity of development is comparatively lower in Ashram Road and CG Road than that at Prahladnagar. Office buildings and office-plus-retail buildings here are developed at built-up intensity index of around 1.15-1.35. The socio-economic scenario, technological advancement, real estate market dynamics prevailing during the period around which an area gets developed significantly affect the way lands get exploited through intensive use. The development control regulations enforced by concerned local authorities, appetite of city's real estate market, state of available construction technology and practice were quite different at the time-period when each of the three areas observed rapid development. Both, Ashram Road and CG Road, witnessed several high-rise commercial buildings, many of them sharing the list of tallest buildings and regarded as landmark buildings of the period when these areas got developed as major commercial area. However, Prahladnagar being the most recently developed area observe highest intensity of commercial development amongst the three areas.

6. Inferences

The city of Ahmedabad has expanded nearly equal i.e. 10-12 km in all directions from its nucleus owing much to its ring-radial urban structure. Even with such extended urban foot-print, Ahmedabad is considered to be compact compared to Indian and world metropolises of comparable population size. However, it has certainly transformed to a polycentric structure with emergence of several industrial, institutional and commercial centres/sub-centres. With respect to Higher-Order Commercial Areas, Walled City area is observing a decline in its prominence, and Ashram Road, CG Road, Prahladnagar are the other three most important areas. Of the three, Ashram Road and CG Road are located closer to city's geographic centre. More importantly, with population density being higher in Walled City and nearby eastern areas, the Population Centre Index of Ashram Road, C G Road and Prahladnagar is derived to be 0.91, 0.82 and 0.57 respectively. Thus, considering the geographical location, population density and dispersion, and public transport accessibility, the nodal (location) significance of Ashram Road and CG Road is much stronger than that of Prahladnagar.

However, the strategic proximity to SG Road enable Prahladnagar with strong connectivity to the developing urban and peri-urban areas, and especially to thriving industrial development around Sanand in south-west of Ahmedabad. It is also important to note that the residential areas of West Ahmedabad around Prahladnagar are predominantly occupied by upper-middle to higher income group households as indicated by the real estate development and property prices prevailing in these areas. These are important favourable factors that have fostered the growth of commercial development at Prahladnagar. HOCA at Ashram Road is spread in largest area i.e. 105 Ha followed by CG Road having 85 Ha area, and Prahladnagar (55 Ha) is comparatively smaller in terms of land area. A comparison of extent and intensity of different types of commercial development over a unit area of land, say 1 Ha, at the three HOCAs is summarized in an illustration under.

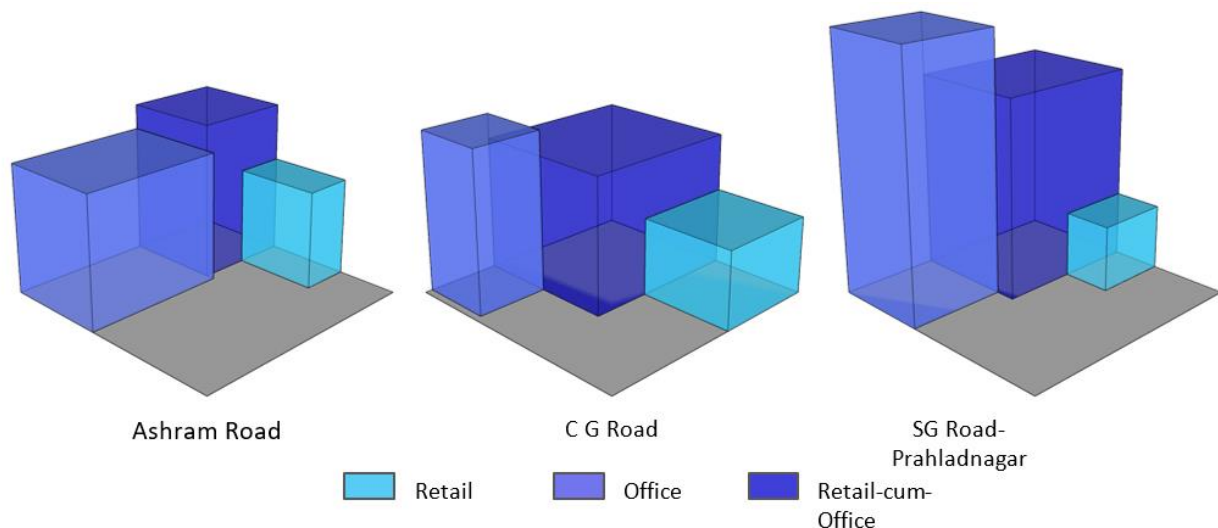


Figure 12. Comparison of Retail, Office, Retail-plus-Office Development over Unit Area of Land at Three HOCAs.

It is observed that office buildings occupy a larger share in Ashram Road and Prahladnagar but are not as prominent in case of CG Road. Office-plus-retail buildings occupy significantly large share at CG Road as well as at Prahladnagar which is twice than that at Ashram Road. Considering retail activities are limited to lower floors (fewer in numbers) and offices occupy upper floors (more in numbers) in most of office-plus-retail buildings, CG Road too has significant amount of office space despite relatively lower share of exclusive office buildings. Share of retail buildings is highest at CG Road amongst the three areas. The high intensity commercial development is likely to continue in vacant areas around Prahladnagar and other nearby areas around SG Road. With many high-rise commercial buildings under construction in these areas, the extent of commercial development at Prahladnagar and areas around is expected to manifold in coming times.

At present, large parts of Ashram Road and CG Road have now become suboptimal use of land with respect to higher Floor Space Index permitted as per revised development control regulations. The current statutory Development Plan of Ahmedabad Urban Development Authority has earmarked areas around Ashram Road as CBD zone and promotes commercial development with higher FSI up to 5.4. Ahmedabad Municipal Corporation has completed public-realm components of a much-acclaimed project of Sabarmati River-Front Development. Large tracts of vacant lands carved out along the river-front through this project falls within CBD zone. Ahmedabad Municipal Corporation is also chalking out Local Area Plans to redevelop Ashram Road as CBD and retrofitting of public realm at CG Road. While Ashram Road, CG Road offer locational advantage, the current state of obsolete building stock, amenities, parking, infrastructure, image and branding of the area pose concerns. Some sites are being redeveloped to exploit higher permissible FSI, but the pace of redevelopment is slow and the share of such projects is very low. Development is not picking up in land parcels of Sabarmati River-Front Development project identified for sale and private-sector development are also lying undeveloped so far.

On the other hand, the current statutory Development Plan of Ahmedabad Urban Development Authority is promoting transit-oriented development by permitting higher FSI along Bus Rapid Transit routes and corridors of Metro Rail which is under implementation. Moreover, the Development Plan and zoning and development regulations provide ample possibilities for commercial development to agglomerate at most locations in the Residential Zone if the real estate market forces may prefer. Development of wider roads and other infrastructure, amenities; appreciation and speculation in real estate prices; availability of large vacant land parcels; upcoming new building stock with contemporary design and specifications are some of the key factors favourable for growth of commercial real estate along arterial roads, major junctions in newly developing urban peripheries. As the study suggests the scale and significance of HOCA at Prahladnagar and similar area along SG Road shall foster further in coming times.

Thus, in this context, understanding about significance and development characteristics of identified HOCAs as presented in this paper and a further detailed study of building stock, functional units, infrastructure and amenities, opportunities and challenges posed at these HOCAs shall be useful for fostering the potential of existing HOCAs, their renewal and redevelopment. Likewise, it shall be also useful for envisaging, facilitating and regulating development of new HOCAs at strategic locations through comprehensive planning in order to enable development of functionally efficient, economically productive, and sustainable city.

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