Rejuvenation of Built Heritage of Porbandar City through Local Area Planning

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Abstract

Local Area Planning (LAP) methodology is the new approach introduced in GTPUD Act of Gujarat in 2014. The city of Porbandar is and example of having organic growth without TP Schemes. However, the LAP methodology could be applied to a city with these urban characteristics. In this study, public opinion was considered for identification of neighborhoods having side effects of urbanization. The proposal for LAP features maximum FSI of 3 and 4 based on the abutting road width. The proposal also features an extra built-up of almost 2 lakh sq m. The proposed road network covers an area of almost 24 per cent of the LAP boundary in compared to existing 26 per cent. The proposal underlines that urban design projects like development of chowks and gardens, can also be covered, and recommends that Improved circulation pattern, reconstituted plot boundaries and availability of additional built-up will lead to healthy urban development.

1. INTRODUCTION

Urbanization is closely linked with the rapid and historic transformation of human social roots where rural culture is converted to urban culture. Many rural inhabitants come to the city for reasons of seeking work and social mobility (Jaysawal and Saha, 2014). In India, most of the modern cities grow in an organic manner. This haphazard development makes it difficult for urban local bodies to have a holistic development in the area. The difficulties are severe in areas like CBD. In India, land acquisition, DP / TP, etc.; are used to maintain the urban growth. Another important tool is 'Local Area Planning' which is specially mentioned in the GTPUD Act (2014 amendment) as Chapter VI under section 76.

Porbandar is one of the examples of the city with side effects of urbanization like traffic congestion, overcrowded residential areas, varying street widths, etc. The city also has its fair share of natural and built heritage with places like Kirti Mandir (birthplace of Mahatma Gandhi), Sudama Mandir and a bird sanctuary. In this study, efforts are made to derive various proposals for Porbandar city using LAP to overcome the problems.

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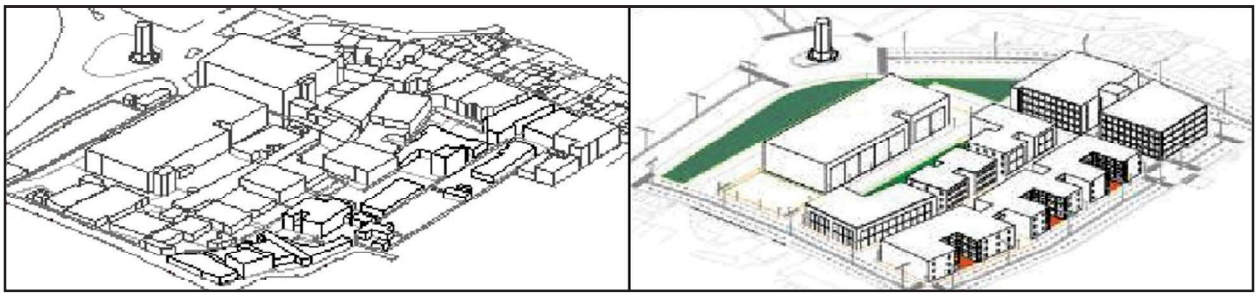
Fig. 1: Implementation of Local Area Planning in Already Developed Urban Area



Porbandar is a town with area of 7 sq km. The city currently does not have non - urbanized land in the city limits and has organic growth. The town with such a nature of urban scenario cannot opt for TP schemes and hence was stuck with future development. Due to such scenario the city is facing multiple urban issues like traffic congestion, overcrowding, varying street widths, absence of hierarchy in transportation network, undevelopable plot sizes, absence of community spaces etc. To overcome these issues the Local Area Planning (LAP) can be adopted.

LAP is concerned with resolving local level problems and issues. Its priorities include overall welfare of the people and development of the local area. Local Area Plans can be prepared for the following scenarios:

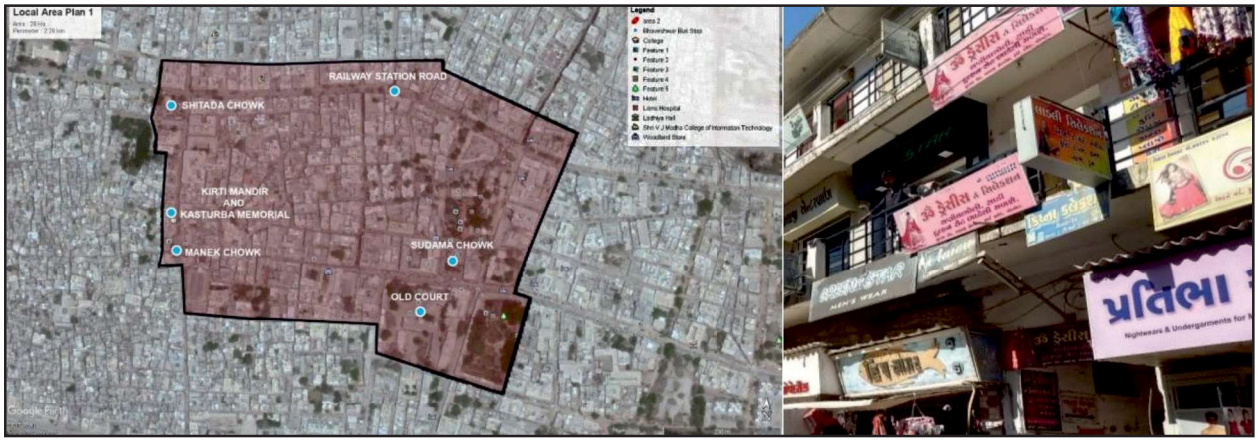
- For planned development of urbanizing periphery or urban village;
- In already developed areas;
- In old, dilapidated and unauthorized areas;
- In a disaster prone part of the city; and
- For heritage site being impacted by the surrounding environment.

In older areas, the local area plan framework could be used to identify deficits of infrastructure in view of the demand and integrate the same in ward level plans. The resulting interventions desired at the local level can have implications for the DP, which could be integrated in the revision process. Such implications could include land-use, built-form and urban design aspects that find mention in local Development Control Regulations (DCR).

2. EXISTING SCENARIO OF PORBANDAR CBD AREA

Delineated boundary for the proposed LAP was achieved through the pilot survey or public opinion. The LAP-The Heritage Square is about 28.14 hectare. The area is predominantly commercial and acts as a CBD for Porbandar city. The overall urban fabric can be visualized as a low-rise, mostly G+2 cluster of adjoining buildings with commercial and residential uses with narrow streets. Housing is mostly introvert with common faliya at the center and land lock plots. These

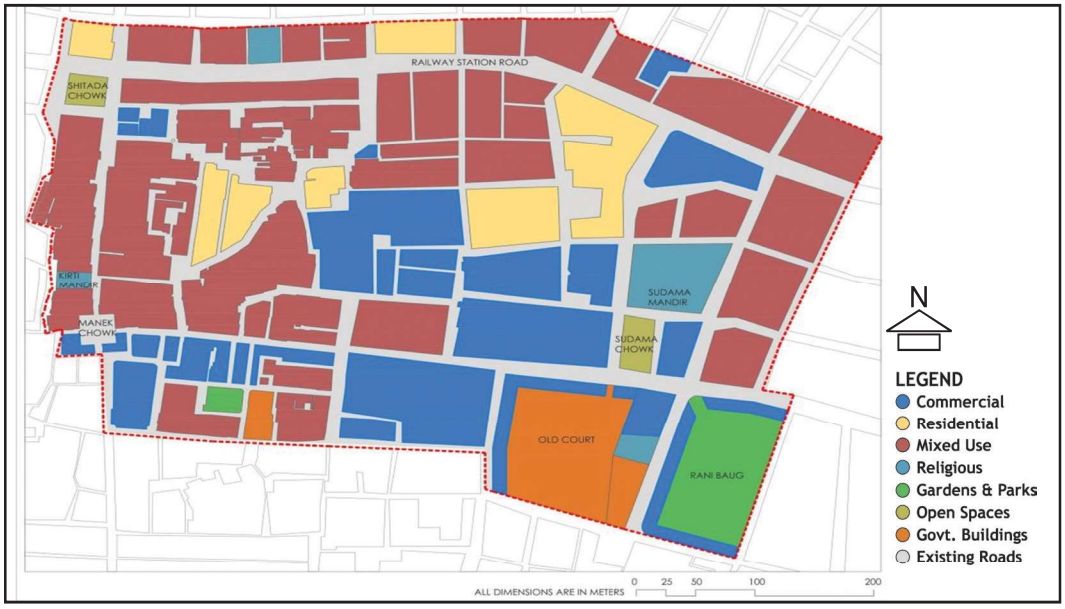
Fig. 2: Local Area Plan - The Heritage Square



central faliyas are currently government Land which is a big advantage for any redevelopment scheme. There are no restrictions over land use of the building unit with respect to its size. Hence, the old dilapidated buildings are converted to commercial shops.

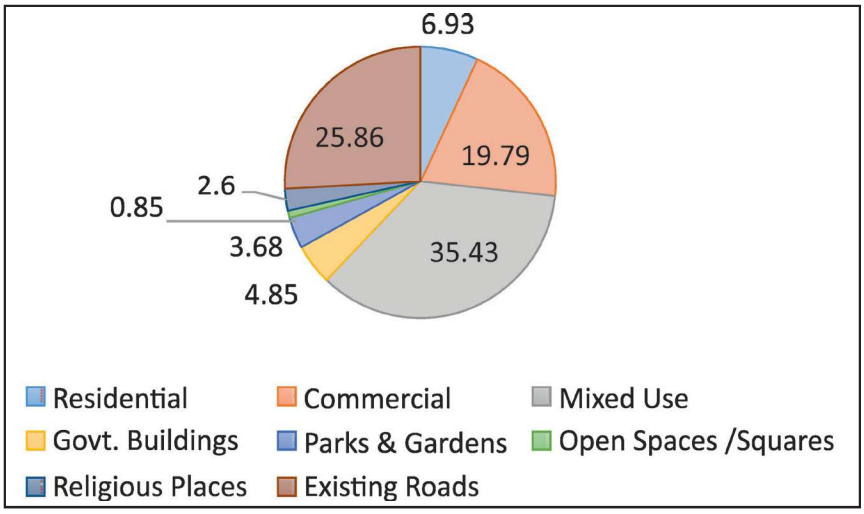
This redevelopment has affected city's infrastructure and density in an unhealthy manner. The small plots were redeveloped without leaving any margins and road frontage and even consumed FSI - 2, more than permissible. This haphazard redevelopment is constantly increasing pressure on all physical infrastructures. These demands for area development policy and strategy which could take care of the entire current situation keeping in mind the future needs.

Fig. 3: Existing Land Use Map at Block Level of LAP



2.1 Existing Road Network - LAP

Fig. 4: Existing Land Use Distribution of LAP



The LAP study area has two major roads running in East-West direction namely - M.G. Road (varying width from 15 m to 7.5 m) on the South and SVP Road (Station Road = 15 m wide) on the North. Another major link is the connecting road between Manek Chowk and Shitala Chowk known as Kirti Mandir Road. Typical block sizes vary greatly throughout the study area and most of them are less than 400 m of perimeter which encourages walkability in the area. Walkable block sizes have resulted into market being fairly pedestrian with vehicular traffic or either through traffic.

Unavailability of footpaths for pedestrians and on street parking has made it difficult for pedestrians to move around the streets. Unavailability of parking

Table 1: Road Network Characteristics in Study Area

S. No.	Road Width (m)	Road Length (m)	Area (sq. m.)	% Length	% Area
Category A					
1.	15	946	14190	14.19	25.18
2.	12	1323	15876	19.84	28.17
3.	9	877	7893	13.15	14.00
4.	7	1179	8253	17.68	14.64
5.	6	864	5184	12.96	9.20
6.	4	525	2100	7.87	3.73
7.	3	955	2865	14.32	5.08
	Total	6669	56361	100.00	100.00
Category B					
8.	Uneven Widths / Chowks		16419		
	Total	6669	72780		

within the plot area even after redevelopment has led to such a situation. Also there is no regularized zone for street hawkers. The street widths currently range from 3 m to 15 m. Footpath for pedestrians can only be seen on 15 m wide roads.

2.2 Existing Built Forms

The built form in the LAP area varies from high density row house clusters and mixed use buildings with commercial on ground and residential on upper floors. The Urban fabric in the LAP area is dense – particularly in the areas of Kirti Mandir, Sutaarvada and Manek Chowk. The building height varies from G to G+3 floors. Also recently in last 5 years, apartment buildings up to G+6 floors have also come up.

Fig. 5: Existing Road Network of LAP

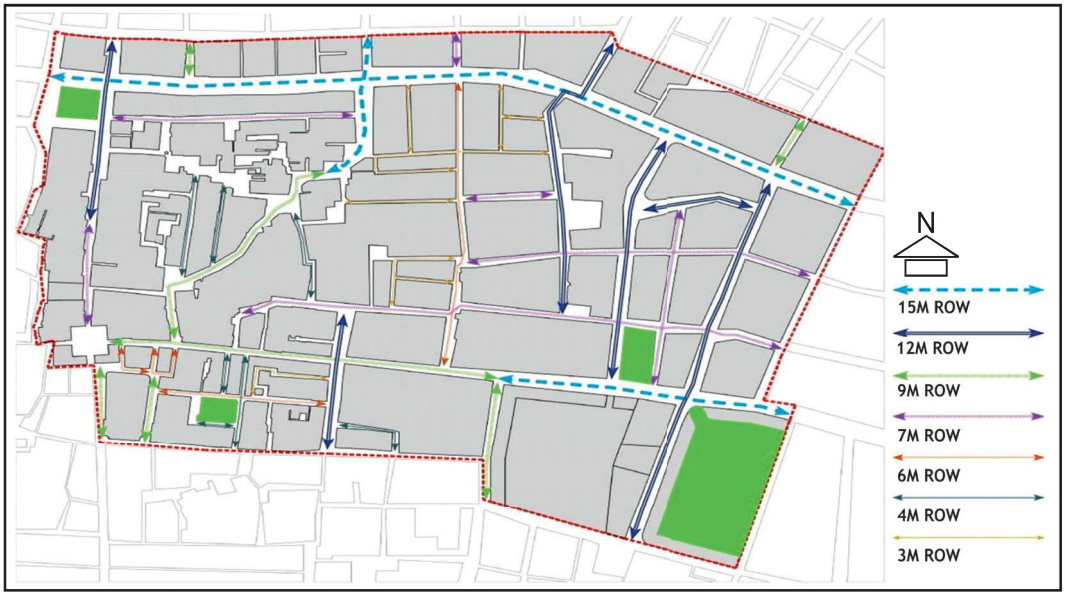
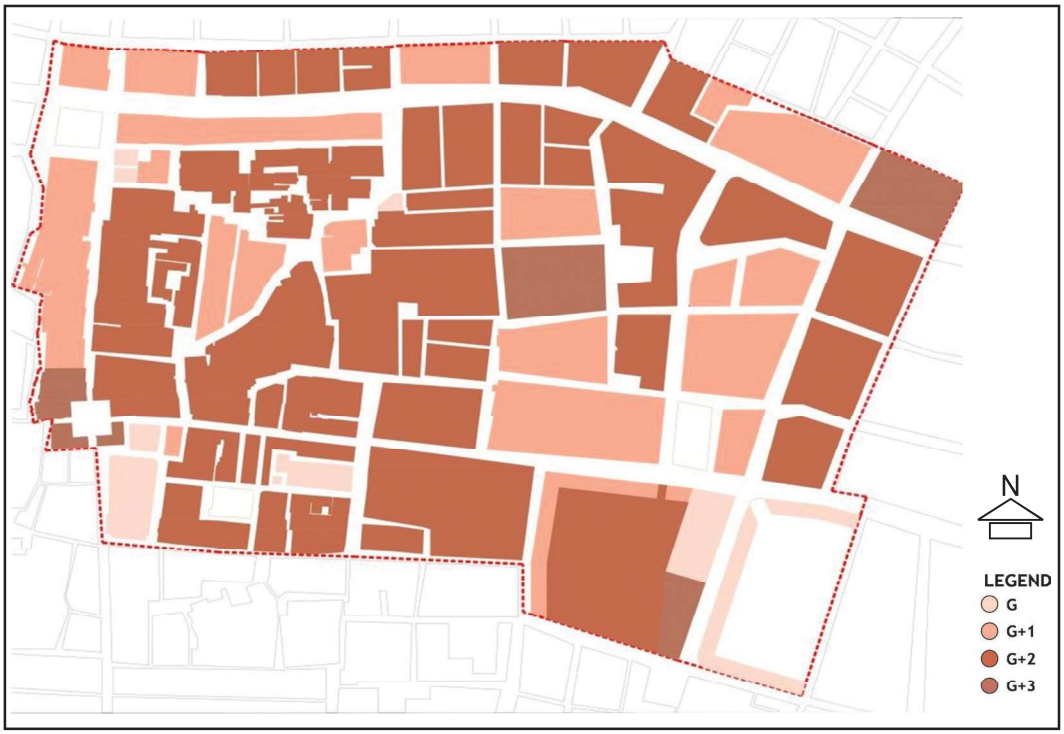


Fig. 6: Existing Road Network of LAP

Fig. 7: Building Height Map of LAP



2.3 Kirti Mandir Block

The Kirti Mandir Block is situated on the Western end of the LAP boundary as shown in Fig. 8. The Kirti Mandir block has an area of 2.12 hectare. The block has two important structures – Kirti Mandir and Kasturba Memorial. The area also features an urban square, two open plots and a police station.

Land use distribution shows a maximum of 33 per cent for residential and 34.30 per cent of roads. Despite of having such a large chunk of land under roads, the area suffers congestion and recessed plot entries due to the irregular street widths,

Fig. 8: Kirti Mandir Block Location W.R.T. LAP

Fig. 9: Existing Land Use Plan of Kirti Mandir

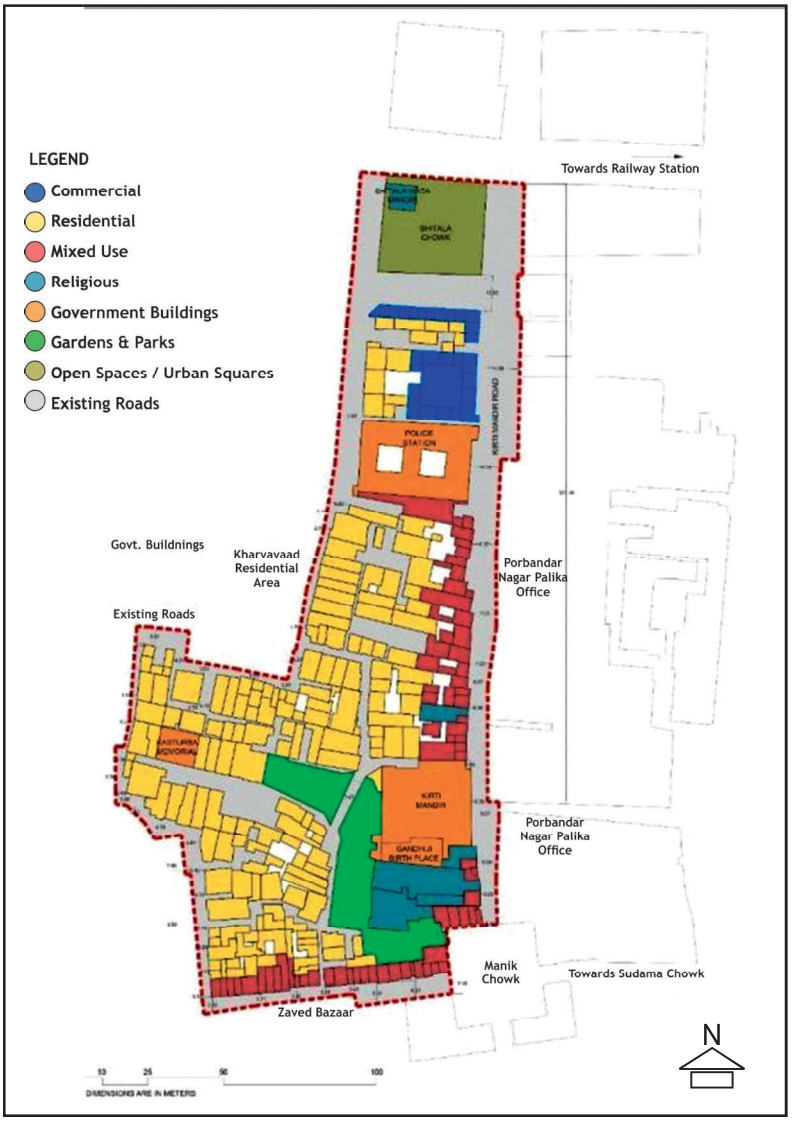


Table 2: Existing Built-up Area of the block

Structure	Built-Up Area (Sq.m.)
G	217
G+1	3135 X 2 = 6270
G+2	4382 X 3 = 13146
G+3	260 X 4 = 1040
Total built-up area	20673

regularization of Otlas and ineffective implementation of build to line during construction process. The existing street widths range from 14 m wide on Kirti Mandir to 1.53 m in the inner residential roads. The back road connecting Kasturba Memorial to the Shitala Chowk has an avg. street width of 1.8 m only.

Despite of having such a historical significance and heritage value for the city, the urban local body has failed to provide the visitors with basic amenities like parking, way finding signboards, drinking water and public transportation connectivity. The housing scenario is also very poor due to overcrowding and poor ventilation. The core reason for this lies in the plot size of the residences as they are as low as 15 sq m in few cases. The building height scenario is as per Table 2:

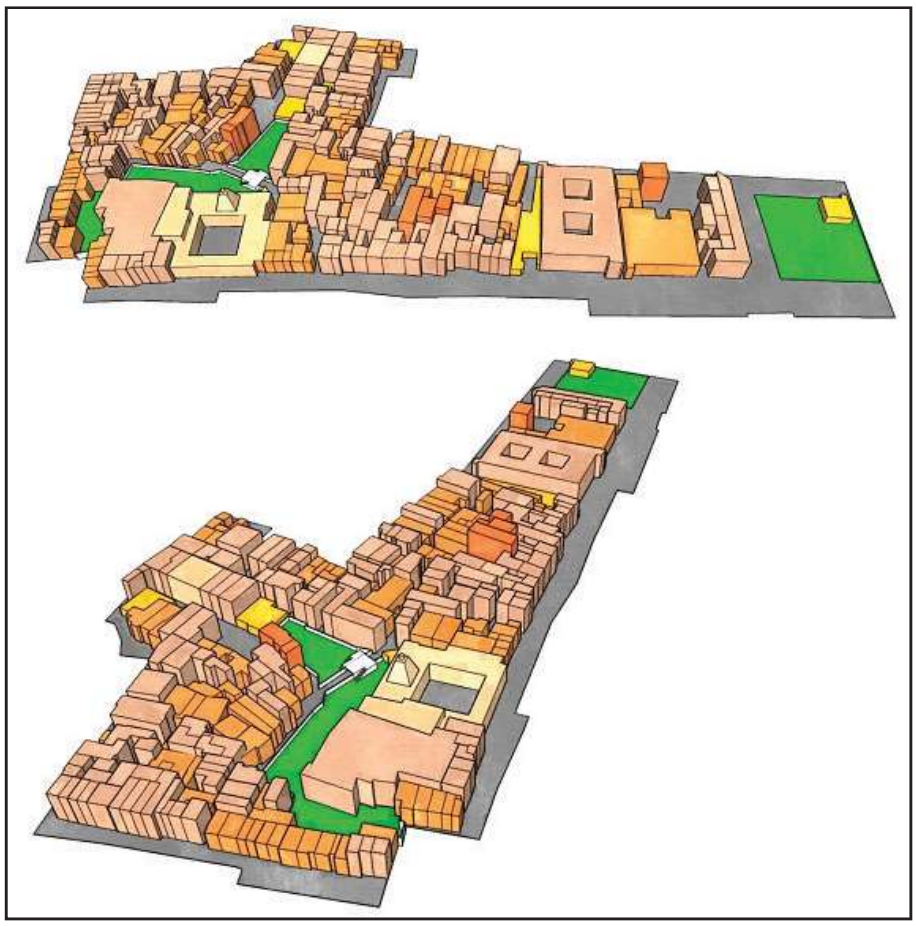
3. PROPOSALS FOR LOCAL AREA PLAN

3.1 Accessibility Improvement

The aim of this LAP was to improve accessibility to all the plots with special reference to the protected monuments. The proposal begins with road widening of some roads within the boundary. The most significant one being the widening of Kirti Mandir Road and 9m wide road at the back. Remaining all roads is widened to at least 6 m.

3.2 Amalgamation and Re-Constitution of Plots

Fig. 10: Birdseye Views of Kirti Mandir Area



The existing plot sizes are too small to be developed according to comprehensive GDCR. Hence, the amalgamation and re-constitution of the plot boundaries seems to be as a feasible option for redevelopment strategy. These new plots will inhabit the plot owners and tenants already residing in this area. In majority of cases, the location of the new plots is same as that of the old one. The new plot sizes ranges from 552 sq m to 2,339 sq m, which are developable plot sizes. In this exercise, the adjoining buildings of Kirti Mandir and Kasturba Memorial are kept intact to avoid any damage to the monument.

3.3 Proposed Built Form

The proposed built form consist of a low-rise structures (upto 18 m height) with commercial on ground floor and upper floors will be residential in nature. The internal layout of the buildings will be finalized through public participation in each plot. Also, for developing a new urban fabric of the CBD area, the G+1 façade would be similar for all the buildings.

3.4 Advantages of Redevelopment Model

- Redevelopment under LAP provides with the additional FSI of 3 in contrast to FSI 2 of Comprehensive GDCR.
- Area falling under LAP has maximum FSI of 3 and hence no regulation for height restrictions.

Fig. 11: Proposed Roads and Re-constituted Plot Boundaries

Table 3: FSI and Plot Area Analysis for Kirti Mandir Block

Parameter	Existing	Proposed
FSI (Plot)	2	3
FSI (Gross)	0.97	1.44
Total Plot Area (sq.m.)	12982	12706
Total Built Floor Space (sq.m.)	20673	30659
Streets	34.30 %	35.59 %

- The residents now have multiple options for redevelopment and increased floor space. The issue of overcrowding within the household can now be solved.
- The fire fighting vehicle and ambulance can now reach to every building.
- The redevelopment policy ensures enough parking facilities for all residents in form of underground or surface parking.

3.5 Proposed Road Layout; Following Hierarchy

The proposed road layout is set to form a hierarchy from arterial roads to collector streets and finally local streets. There are a total of 4 types of streets proposed in the LAP region – three of them are vehicular streets with 15 m, 12 m and 9 m ROW respectively and a 9 m wide pedestrian street. The details of proposed ROW

are as follows:

- Street patterns are such that, it forms overall blocks of perimeter ranging from 250 m to 500 m, which would increase the walkability of the area. The block sizes have either been increased or kept constant from the existing scenario;
- For pedestrians, all the new roads will have footpaths. A few purely pedestrian streets featuring linear parks are also proposed and also accommodates regularized hawker's zone; and
- All the front margins in the new LAP would be declared as public domain; hence the footpaths are designed in that stretch to maximize pedestrian-shop front interaction.

Fig. 12: Proposed Building Footprints for Kirti Mandir Block

3.6 Amalgamation and Reconstitution of Plots: Developable Sizes

The similar system of amalgamation and re-constitution of plots will be followed as in the case of Kirti Mandir Block. The block sizes vary from 250 m to 500 m in perimeter. The plot sizes have increased significantly, ranging from 700 sq m to 3,500 sq m. These increased plot sizes are enough to be able to get developed according to comprehensive GDCR. In comparison to old scenario which had total

Fig. 13: Proposed Birdseye view of Kirti Mandir Block

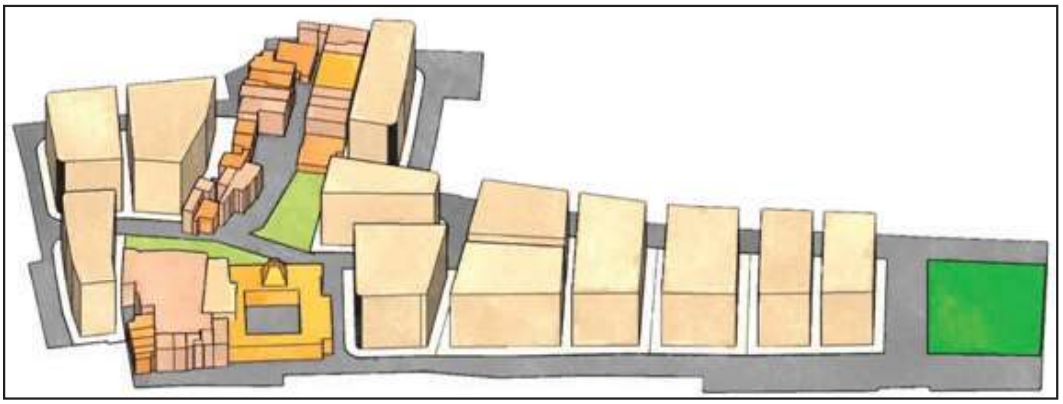


Table 5: Proposed Roads Detail

ROW (m)	Length (m)	Area (sq m)	% Length	% Area
15m (vehicular)	1373	20595	22.71	30.15
12m (vehicular)	1528	18336	25.28	26.84
13.5m (vehicular)	240	3240	3.97	4.74
9m (vehicular)	2156	19404	35.67	28.41
9m (pedestrian)	748	6736	12.37	9.86
Total	6045	68311	100.00	100.00

plotted area of 20.30 ha; the proposal features the plotted area of 21 hectare.

3.7 Building Setbacks

In this LAP, the two setbacks i.e. road side margin and side margin have been assigned a specific function to follow. In respect to this idea, the concept of compound wall has been totally eliminated which leaves us with open boundaries to interact directly to the built form. There are basically three setbacks that are followed in this LAP. They have direct co-relation with the abutting road width and the building height.

3.8 Density Utilization Maps

This map deals with the FSI (free + chargeable) assigned to every plot based on the abutting road widths. The CBD area of Porbandar consists of old dilapidated buildings. Thus, this is one of the prime areas where redevelopment potential is there. The maximum assigned FSI is 4 to the plots abutting 15 m wide road and rest are awarded FSI of 3. Also according to the clause 15.1 of comprehensive GDCR, there are no height restrictions other than through airport authority within the LAP. This would potentially

Fig. 14: Proposed Road Layout

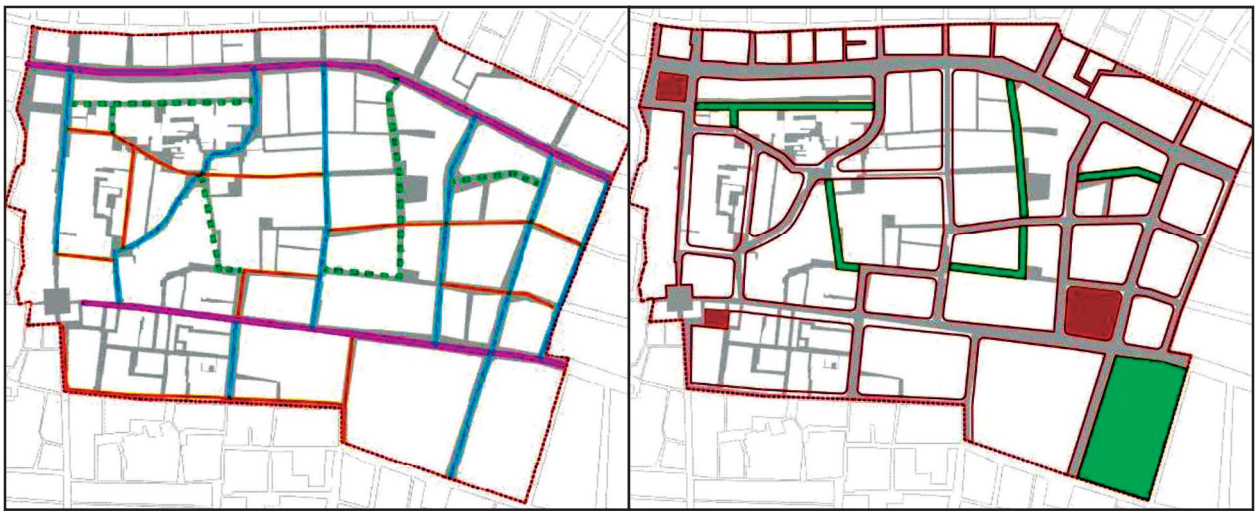
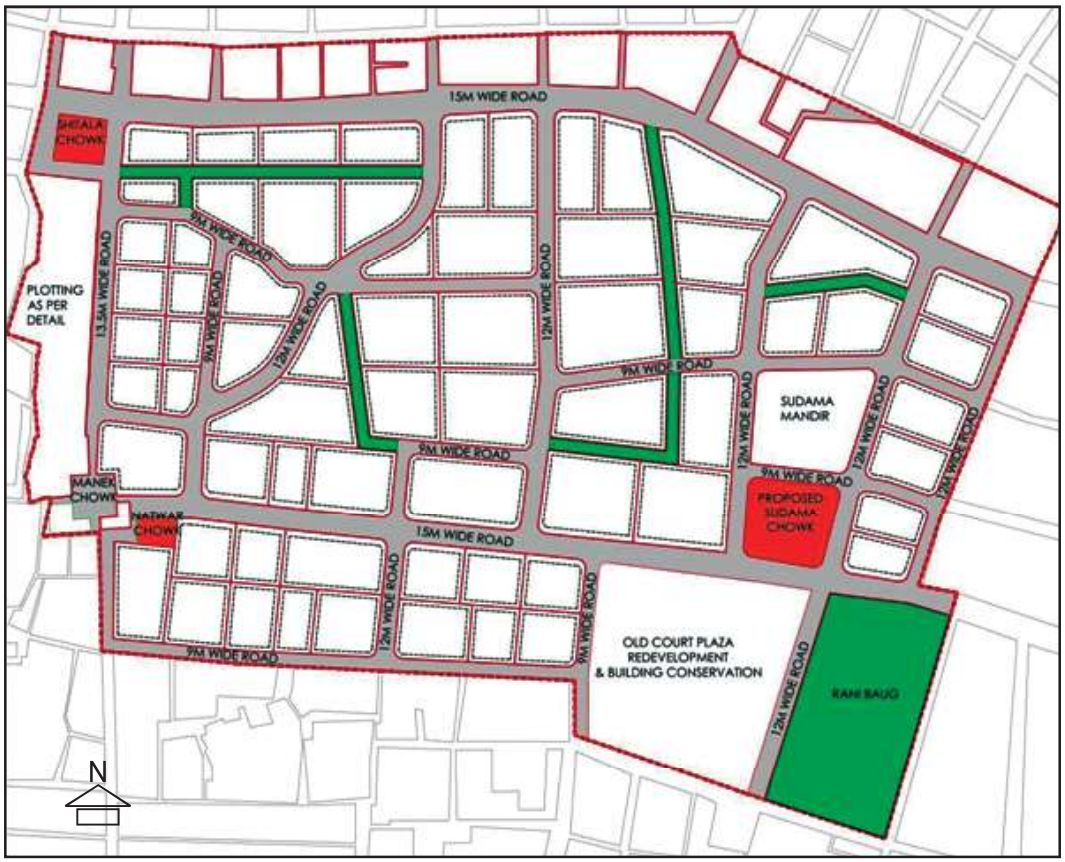


Fig. 15: Setbacks for the Proposed LAP



imply that full FSI could be consumed with careful planning. Also, the base FSI of 2 will be free and the remaining FSI would be chargeable.

The Table 5 suggests that 6.13 lakh sq m of built-up area will be available after complete implementation of the LAP compared to existing 4.15 lakh sq m.

3.8 Building Massing and Façade Guidelines

In recent years, the heritage fabric of the city is being completely neglected. There are new buildings popping up in the CBD area without paying due respect to the surrounding environment in terms of vernacular architecture, built form, materials used, etc. The new building facades have failed to maintain the harmony in the CBD area. This sets the need of unified façade pattern and building material and thus demand for the policy on the same.

Thus, new façade guidelines are introduced to maintain the uniformity throughout the

Table 5: Calculations for Proposed Built-Up Area in LAP

FSI	Plot Area (sq.m.)	Built-up (sq.m.)
3	129713	389139
4	56060	224240
		6,13,379

Fig. 16: Density Utilization Map of LAP

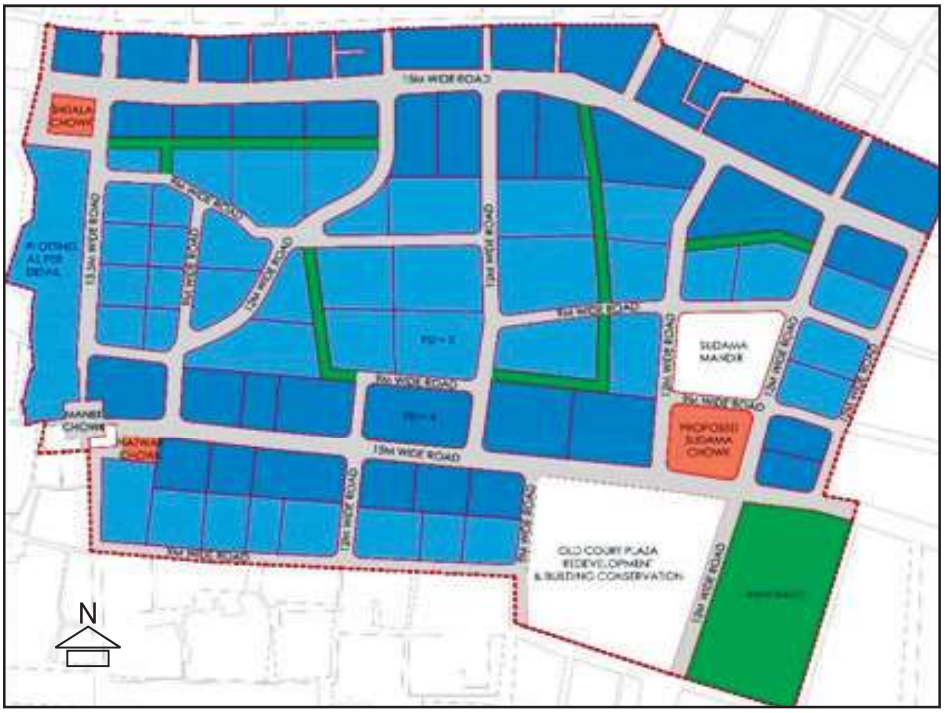
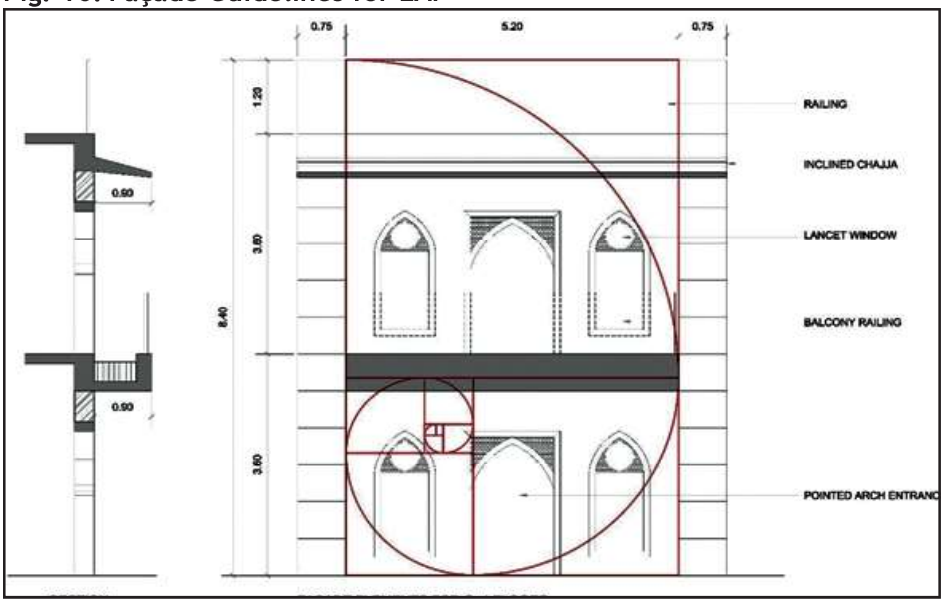


Fig. 16: Façade Guidelines for LAP



CBD. The façade guidelines include the treatment of G+1 floors of every building. This only includes façade facing roadside only. The elements are taken from the existing built heritage throughout the city. The elements include railing, inclined *chajja*, lancet window, balcony and pointed arch entrances to the shops. The façade is modular in nature with size in golden ratio of 1.618.

4. CONCLUSIONS

Local Area Planning is a third tier of planning in India involving micro level planning to each plot. This new paradigm of planning deals with local issues, which could not be solved through Development Plans. LAPs can be implemented at any place like dilapidated urban areas, core walled city, urban villages, fast growing urban canters, etc. The LAP – 'Heritage Square' is the CBD area of the Porbandar city with an area of 28.14 ha. Proposals for LAP attempted to solve the various issues taking in account the analysis of questionnaire survey are:

- The issue of land lock plots and recessed plot entries was solved by proposing a new road layout juxtaposed on the existing street patterns. The procedure involves road widening at some places;
- The existing plot sizes were too small for regularized re-development, so amalgamation and re-constitution of plot boundaries were adopted to create large developable plot sizes. This leads to decrease in overall plotted allotment for development from 19.58 ha to 18.19 hectare;
- The proposals of new road sections were floated featuring the on-street parking;
- The FSI of 3 and 4 were provided for all the proposed plots (with size larger than 500 sq m) based on the adjoining road width;
- Built form of the buildings would feature a similar façade for G+ 1 floor based on the façade guidelines;
- High-rise mixed use built form with commercial on ground floor and their own residences on upper floors are adopted;
- Road-side margin of all the plots will be considered as public domain and developed as walkways. The buildings will not have a compound wall on the road side margin; and
- LAP also provides with opportunity to undertake urban design projects like Urban Squares, Parks and Heritage building conservation and Plaza redevelopment.

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